MODEL **HTM-1505R**

MODEL **HTM-1505CS**

MULTI-FORMAT COLOR MONITOR

OPERATION MANUAL

Ikegami

Safety Precautions

For safe and correct usage

Thoroughly read the "Safety Precautions" and the operation manual before using the unit.

Keep them carefully after reading and use as ready reference.

Pictorial Symbols

The "Safety Precautions" and markings on the product contain various pictorial symbols to assure the safety use of the product and prevent an injury to you and other persons as well as property damage.

As each symbol has the following meanings, thoroughly understand them before using the unit.

Please note that some precautions may not be applicable to the product that you purchased.

⚠ **WARNING:**	Indicates a potentially hazardous situation that may arise due to improper handling by taking no notice of this symbol and could result in a serious injury or death.
⚠ **CAUTION:**	Indicates a potentially hazardous situation that may arise due to improper handling by taking no notice of this symbol and could result in an injury or property damage only.

[Note] △ means a heads-up.

Examples of symbols

	Symbol "⃠" means a prohibited action. The content of prohibited matter is mentioned near or in the figure. (The figure on the left side represents "Caution for disassembling".
	Symbol "" means a mandatory or directive content. Practical precautions are shown in the figure. (The figure on the left side represents "Pull out power plug from plug outlet.")

⚠ CAUTION

When using the unit:

	**Do not place a receptacle containing water or a small metallic piece on the unit!** If water spills in the unit, a fire or electric shock may be caused.
	**Do not use other power supply voltage than specified!** A fire or electric shock may be caused.
	**Do not put a metal body or flammable material into the opening of the unit!** Do not drop in such material! A fire or electric shock may be caused.
	**Do not make alterations to the unit!** A fire or electric shock may be caused.

When installing the unit:

	**Do not set the unit in an unstable place!** It may drop or turn down, causing an injury.
	**Do not connect to any other equipment than specified!** A fire or electric shock may be caused.
	**When fixing the unit, ask a professional contractor!** When fixing the unit, do so in accordance with the specified procedure; otherwise it may drop or turn down, causing a fire, electric shock or injury. Especially when fixing it to the wall or ceiling, be sure to ask a professional contractor.

When an abnormal state occurs:

	**If the unit produces smoke, gives out a foul smell or produces an abnormal sound, turn off the power switch immediately and pull out the power plug!** If the unit is used as it is, a fire or electric shock may be caused. Check that no smoke is produced, and then contact the dealer or sales representative.
	**If water or foreign matter enters the unit, turn off the power switch and pull out the power plug!** If the unit is used as it is, a fire or electric shock may be caused. Check that no smoke is produced, and then contact the dealer or sales representative.
	**If the unit is dropped or the case is broken, turn off the power switch and pull out the power plug!** If the unit is used as it is, a fire or electric shock may be caused. Contact the dealer or sales representative.
	**If the unit fails to operate properly, turn off the power switch and pull out the power plug!** If the unit is used as it is, a fire or electric shock may be caused. Contact the dealer or sales representative.
	**Do not use any damaged power cord (exposed core, broken wire, etc.)!** If the unit is used as it is, a fire or electric shock may be caused. Contact the dealer or sales representative.

⚠ WARNING:

When installing the unit:

Do not place a heavy thing on the unit! The unit may lose a balance or drop, causing an injury.
Do not get a leg over the unit or carrying case! **Do not sit down on it!** The unit may break down or turn down, causing an injury.
When moving the unit, be sure to turn off the power switch, pull out the power plug and remove the connecting cable between the unit and equipment beforehand. The cord may be damaged, causing a fire or electric shock.
When the unit is not used for a long period of time, be sure to pull out the power plug for safety's sake. Otherwise, it may cause a fire.

When installing the unit:

Do not block up the ventilating hole of the unit! **If the ventilating hole of the unit is blocked up, heat will accumulate internally, causing a fire. Avoid the following usage:** ・Turning up or down the unit. Turning it sideways. ・Pushing it in ill-ventilated place. ・Placing it on a carpet etc. ・Covering it with a table cloth etc.

Hints on proper usage

When using the unit:

・**When using the unit in a water-place such as bathroom, poolside, etc., prevent water from flowing into the unit and cable; otherwise causing an electric shock.** When using it in rainy weather, during snowing, on the seaside or waterside, and in a cooking place, use care to prevent such an accident.
・**When snow comes on, check the surrounding conditions before use.** Stop using the unit temporarily as necessary and do not touch it; otherwise causing an electric shock.
・**Do not connect any equipment whose required electric power exceeds the wattage (W) that can be supplied from the AC outlet.** Refer to wattage shown near the AC outlet or in the operation manual.
・**Do not bend (or twist or pull) the power cord and connecting cable excessively.** The covering material of the cord and cable may break, causing an electric shock.

When installing the unit:

Avoid installing the unit in a moist place, dusty place or any other place exposed to oily smoke and vapor; otherwise causing an electric shock. Do not place the unit near a cooking table or humidifier.
・**As this unit is heavy (over 10Kg), carry it by 2 or more persons.** If it is carried by one person, it may turn down or drop, sometimes causing an physical damage to the waist or hand or a physical injury.
・**Take preventive measures against the overturn of the unit due to an earthquake or sudden shock.** As the unit may overturn and cause a physical injury, take preventive measures against the overturn.

Maintenance

Turn off the power switch and pull out the power plug before maintenance; otherwise, causing an electric shock.
In order to keep a long and stable performance, "Periodical check" is recommended. For details of the periodical check, consult with the sales representative.
As the unit has high-voltage parts in it, an expert who has the knowledge about the product should perform these check, maintenance and repair; otherwise causing an electric shock.

OPERATING PRECAUTIONS

In order to use the monitor in safety, thoroughly read this book and pay special attention to the following matters:

1. **Do not use other power supply than specified (AD and DC).**
2. **Do not give an excessive shock to the monitor.**
   Otherwise, a trouble may occur, also causing a danger due to the implosion of CRT.
3. **Do not use and keep the monitor in the following places:**
   - **A place with operating temperature outside the prescribed range**
     Pay special attention to radiation of heat, because the inside of the monitor may be heated by direct sunlight even if it is used out of doors at the prescribed surrounding temperature.
     Also, never block off both exhaust opening on the back of the monitor and air inlet on the bottom.
     Especially, check that any blackout curtain does not block off the exhaust opening.
   - **A rainy, snowy and/or humid place**
     It may cause an electric leak and a trouble.
   - **A place where strong magnetism is generated.**
     The picture may be distorted in the neighborhood of the transmitting station of a TV station and something that generates high-intensity radio waves.
     In this case, a normal picture can be obtained by changing the position of the monitor according to circumstances.
     Furthermore, in order to protect the monitor from a strong electric field, it may be necessary to provide an external shield separately.
4. **Avoid the direct sunlight to CRT.**
   Exposing CRT to the direct sunlight for a long period of time may deteriorate the fluorescent screen of CRT.
   So, keep this fact in mind when using the monitor out of doors.
5. **Avoid displaying a fixed bright image for long time.**
   Keep in mind that displaying a fixed bright image for long time may result in the burning of CRT.

Warranty

Any defect that occurs during normal use within one year after the date of delivery shall be repaired free of charge.
However, CRT and fuses shall not be warranted.
If a picture does not appear after completion of daily adjustment or it seems that the monitor fails, please contact the store from which you bought the monitor or TECHNO IKEGAMI.

Accessories

As the monitor comes with the following accessories, check for missing:

1. Operation Manual
2. Power Cable
3. Remote Connector

MODEL HTM-1505R
MODEL HTM-1505CS
MULTI FORMAT COLOR MONITOR

CONTENTS

HTM-1505R/HTM-1505CS
MULTI-FORMAT COLOR MONITOR

1. General Description

1.1 General Description

This monitor is a 15-inch multi-format color monitor designed to meet each format of HDTV and for use with SDTV, and it can also be effectively used in various spaces, such as editing and monitoring racks and sending control desk in a sub-control room, broadcast van, etc.

In order to meet various broadcasting formats and system needs, this monitor corresponds to 1080i, 1035i, and 720p for HDTV, and 480p and NTSC, PAL-B and multi-TV format for SDTV (including options).

Moreover, this monitor is easily compatible with HD/SD serial digital inputs as well as usual analog components and composite inputs.

In view of system expandability and ease of maintenance, a lot of optional plug-in modules are supplied, so system change can be easily accomplished only by inserting a module without opening the body cover.

In addition to a newly developed SDI module for multi-formatted inputs, another new type module corresponding to embedded audio is available.

Various functions such as analog or AES/EBU digital output, audio level meter, etc. are equipped in the embedded audio, so that both picture and audio can be simultaneously monitored only by one unit, demonstrating a high performance -to- cost ratio.

1.2 Features

(1) Corresponds to multi-format

Input signals correspond to the following broadcast formats:

- 525i (NTSC): ITU-601
- 625i (PAL-B): ITU-601
- 1035i/60, 59.94: SMPTE 240M, BTA S-001B
- 1080i/60, 59.94: SMPTE 274M
- 1080i/50: SMPTE 274M [Option]
- 1080i/48, 47.95: SMPTE RP211 [Option]
- 720p/60, 59.94: SMPTE 296M
- 480P/60, 59.94: SMPTE 293M

(2) Corresponds to multi-format SDI

Multi-format compatible SDI module (**DKM-501B**) is capable of receiving HD-SDI signals or SD-SDI (4:2:2) signals at the same input terminal without discrimination.

Monitor automatically discriminates the entered HD-SDI or SD-SDI (4:2:2) signals, and displays in a proper format.

(3) Embedded audio output compatible

An optional multi-format SDI (AV, AVD type) module compatible with embedded audio output is provided with a demultiplexer circuit, and can extract and output audio signals superposed on HD-SDI signals and SD-SDI (4:2:2) signals.

An AV type audio output of analog 2-channel (output channel is set on a menu) and an AVD type audio output of AES/EBU digital 8-channel are available.

(4) Embedded audio compatible level meter

DAM-504, 508 modules [option] are audio level meters compatible with embedded audio, and monitors 4 or 8 channel audio signals superposed on SDI signals, together with picture simultaneously.

The level meter is of an LED type installed in the escutcheon, assuring visibility and ease of monitoring.

It is also united with the monitor, eliminating the need for exclusive space.

(5) Remote control function

Three types of remote controllers (parallel/infrared/serial) are available according to the installation place and operating purposes.

In addition to the usual parallel type, a serial input interface that can be remotely operated with one BNC coaxial cable is standard equipment.

A single serial remote controller **SRC-301A** [option] makes it possible to remotely operate up to 99 monitors individually only by making a loop-through connection among various monitors (**17, 18, 20, 30, 80, 90, HTM series monitor**, etc.)

Moreover, an infrared wireless remote control **RCT-201A** [option] is also available.

(6) Digital control

Each digital data is processed at 10 bits, and data change and setting can be easily performed with a rotary encoder.

Image field, screen position, side pin and trapezoidal-distortion correction can also be remotely operated to meet various signal formats flexibly.

(7) Four kinds of color temperature can be stored in memory

In addition to the factory default color-temperature D93/D65, one kind of original color temperature can be stored in memory.

This makes it easier to set and select the optimum white balance quickly according to the state of input image and the purpose of use.

(8) BFS (Beam Feedback System)

A BFS circuit that detects the cathode current of CRT is employed so that a stable white balance can be obtained for a long period of time even if the emission of CRT changes.

(9) 3-line comb filter (NTSC) incorporated

It is a decoder module incorporating a 3-line comb filter realizing the wide band of video by a digital delay drive system with a 8fsc clock at the time of NTSC analog composite signal input.

Y/C separation reproduces high-resolution pictures with minimized cross color and cross luminance by adopting a 3-line comb filter of **Faroudja**™ system.

* An optional NTSC decoder module **DE-801** is required.

(10) A lot of test signals incorporated

A lot of test signals convenient for adjustment of monitor—Cross hatch, Flat field (50%), Window (100%), Character, and Stepped waves with pluge signal etc.— are incorporated.
Moreover, 1080i, 1035i and 720p can be selected at HDTV mode, and test signals of each format of 525, 625 can be selected at SDTV mode on a menu.

(11) Various markers incorporated

Display of 4:3 markers is possible at 16:9 display mode.
In addition, 80%, 88%, 90%, 93%, 100% and many other markers are displayed for the respective 4:3/16:9 aspects at NTSC mode.

(12) Shadow function

As the function of displaying an image area of 4:3 at the time of 16:9 aspect picture and shadowing other picture portion (the contrast of shadow portion can be set to 0% or 40%) is incorporated, it is possible to display an picture of 4:3 immediately while monitoring an picture of 16:9.
Shadow ON/OFF can be remotely operated, so that quick switching is possible.

(13) Degauss timer

It is possible to set the operation of auto degauss designed to automatically operate about 4 seconds after turning on the monitor to the intended time (0 to 4.5 seconds at intervals of 0.5 second) with a timer.
This minimizes a rush current that flows when turning on the system using many monitors at the same time.

(14) Design and structure for easy maintenance and expandability

Signal conditioning module is of a plug-in type (including optional modules) that is easily detachable from the rear side without removing the cover for ease of maintenance.
In addition to the **DKM-501B** multi-SDI module (standard equipment) and analog component signal (YPbPr), it is possible to add an optional module to expand the function.

- **HTM-1505R:** 3 slots
- **HTM-1505CS:** 2 slots

(15) High-performance inline gun CRT

A high-performance inline-gun type CRT with 0.27mm dot mask pitch is employed to assure high definition and minimize the reflection of outdoor daylight etc.
Furthermore, doming (shift of beam due to thermal deformation) of the shadow mask of CRT, which will occur when brightness is increased, has been greatly improved.

(16) Contrast correction for each screen size

In order to prevent a brightness change that will occur when the current density of the electron gun increases due to the contraction of the image field like a normal/under screen or screens of 4:3 and 16:9, contrast correction is carried out so that brightness may always be constant in each screen size.

(17) HD 4:3 scanning

A function of enlarging the 4:3 area picture alone to the whole picture frame (aspect ratio 4:3) at the time of HDTV is provided to monitor the picture in real time when down-converting to the 4:3 of SDTV for HDTV recording.

(18) High-performance high-voltage regulation circuit

As a regulation circuit that controls pulses per scanning line is used in the high-voltage circuit, assuring quick response, minimizing screen distortion and realizing very stable picture.

(19) Auto set-up function

When an auto set-up probe **ASP-80** [option] is used, the factory default color temperature can be automatically controlled.
Furthermore, when operator's original color temperature is set on the monitor, two or more monitors can also be controlled automatically to the same color temperature.

(20) Improved space factor [HTM-1505CS model]

The front side of **HTM-1505CS** model has been made small about 20% by removing the control panel from **HTM-1505R** model.
When installing on a control table or monitor rack, space factor improves, contributing largely to the system design.

2. Specifications

2.1 Common specifications

(1) General

1. Power supply — AC single phase, 50/60Hz
   Within range of 100V line: 100V~120V±10%
   Within range of 200V line: 200V~240V±10%
2. Power Consumption
   HTM-1505R: Approx. 240W
   HTM-1505CS: Approx. 220W
3. Ambient Temperature — 0℃ ~ +40℃
4. Humidity — 90% or less (No condensation shall occur)
5. Dimensions and Weight
   HTM-1505R: 450(W)×310(H)×515(D)mm Approx. 28kg
   HTM-1505CS: 350(W)×300(H)×525(D)mm Approx. 25kg
6. Standard Accessory — Power cable, Remote connector, Operation manual ···One set each
7. Duty — Continuous running duty
8. X-ray Radiation — Below 0.1 mR/H (In all places at a distance of more than 50mm from the outside of monitor)

(2) Video Signal System

1. Frequency Characteristics (At YPbPr input mode)
   a) HDTV : 60Hz~25MHz: +1dB/-3dB
   Above 25MHz: Desending responce
   b) SDTV : 60Hz~10MHz: +1dB/-3dB
   Above 10MHz: Desending responce
2. Sag — Less than 5%
3. Black Level Stability
   Less than 1% in case of 10% to 90% change of APL
4. Aperture Correction amount
   Adjustable by more than +6dB at the following frequency:
   a) HDTV: 10MHz±2.5MHz
   b) SDTV: 4MHz ··· *
   * For SDTV, optional decoder module(NTSC:**DE-801**, PAL:**DE-802**) is mounted. Corresponds to analog/digital composite signal alone.
5. Noise
   Synchronous noies: Above -46dB
   Hum noise: Above -50dB
   Others: Above -50dB

(3) Brightness/Contrast

1. CRT — Dot trio pitch : 0.27mm
2. Horizontal Resolution
   More than 750 lines when it is 120cd/m² at the center of screen in case of YPbPr input (At HDTV mode).
3. Preset Contrast
   Above 120cd/ m² (Factory default)
4. Maximum Brightness — Above 240cd/ m²
   (100% window signal, Brightness PRESET, Contrast MAX)

(4) Deflection/Synchronous System

1. 16 : 9 display size
   a) **NORMAL:** 16:9 size tangent to effective frame of CRT
   b) **UNDER:** 270(W)×152(H)mm
2. Deflection
   a) **SDTV**
   NORMAL SCAN:(4 : 3/16 : 9)
   UNDER SCAN: (4 : 3/16 : 9)
   b) **HDTV**
   NORMAL SCAN:(16 : 9)
   UNDER SCAN: (16 : 9)
   HD 4:3 SCAN: (Zooming function of 4:3 area)
3. Deflection distortion — Within ±1% of screen height (Deflection linearity and raster distortion)
4. Stability of Synchronization
   Input signal operates stably in the following range:
   Internal synchronization: ±6dB of rated value of picture input level
   External synchronization: External sync input level 0.3 to 8 Vp-p
5. High voltage
   Generated voltag: 25kV±1kV
   High voltage fluctuation: Less than 3% based on 100μA within range of beam current 0 to 600μA.
6. Convergence
   Within 90% range of screen height: Less than 0.4mm
   Within 90% range of screen width: Less than 0.5mm

(5) Fanctions

1. Marker function
   a) **Center marker:** ON/OFF can be set on the menu.
   b) **Safe title:** Indicates the following markers according to aspectual status (4:3/16: 9).
   ( ) indicates the aspect when markers are displayed.
   - 80% + 100% (4:3/16:9)
   - 88% + 100% (4:3/16:9)
   - 90% + 100% (4:3/16:9)
   - 93% + 100% (4:3/16:9)
   - 5 devided cross hatch (4:3/16:9)
   - 10 devided cross hatch (4:3/16:9)
   - Cross (4:3/16:9)
   - 14 : 9 100% area (16 : 9)
   - 13 : 9 100% area (16 : 9)
   - 4 : 3 marker (16 : 9)
   - 4 : 3 marker + 80%(4 : 3) marker (16 : 9)
2. Shadow function
   Function of applying the following shadow of 4:3 in 16:9 mode
   - 4:3 marker + Shadow
   - 4:3 marker +80% (4:3) Marker + shadow
   - Shadow only

3. Auto setup

When an auto set-up probe **ASP-80** [option] is used, automatic adjustment of white balance is possible.

4. Remote control

a) Parallel remote control channel

COMPOSITE/AUX/HD-SDI/SD-SDI, RGB/YPbPr, COLOR/MONO, SYNC INT/EXT, 4 : 3/16 : 9, 4 : 3MARKER ON/OFF, 4 : 3 SHADOW ON/OFF, TALLY ON/OFF

b) Serial remote control

Input interface is standard equipment. Almost all monitor functions can be controlled.

SRC-301A serial remote controller is option.

c) Infrared remote control

RCT-20A infrared remote controller is option.

5. Built-in test signal (Change format on menu.)

- Cross-hatching
- 50% flat field
- 100% window
- Character
- Stepped waves with pluge signal

6. Beam feedback system (BFS)

7. Menu assist

- Setting of input signal format
- Setting of RGB/YPbPr switching
- Setting of test signal format
- ON/OFF setting of center cross display of marker
- Setting of marker color
- Setting of R emote ID nunber
- Time setting of degauss timer
- % display of each preset data
- Pass word setting
- Setting of auto set-up
  - Embedded audio-related setting

(6) Memory

1. Kind of Memory

ROM: 64K byte programmable ROM
RAM: 32K byte static RAM

2. Battery Back-up

Memory retention time: 10 years or more
Battery: BR2330-1HF lithium battery

(7) Applicable standards

- **Safety standard:** Conforming to UL1950
- **Radio noise:** FCC Class-A
- **X-ray radiation:** DHHS

2-2. Individual Specifications

* **DKM-501B** multi-SDI 2 and YPbPr/RGB 1-input module are standard equipment.

(1) YPbPr/RGB input module

- YPbPr/RGB 1 input module [standard equipment]
- **DCH-501** dual component module [for YPbPr/RGB 1input expansion]

1. Input/Output terminal

a) YPbPr/RGB: 1 input module [standard]
YPbPr/RGB: BNC 1-line (Loop through)
Synchronous input: BNC 1-line (Loop through)

b) DCH-501
YPbPr/RGB: BNC 1-line (Loop through)

2. Input signal format (YpbPr/RGB)

a) SDTV

- 525i/59.94
- 625i/50

b) HDTV

- 1035i/60, 59.94
- 1080i/60, 59.94
- 1080i/50 [Option]
- 1080i/48, 47.95 [Option]
- 720p/59.94, 60 (Type-1 only)

3. Input level

a) HDTV(BTA S-001B)

- Y,G,B,R input V: 700mVp-p Positive polarity
  S: ±300mVp-p
- Pb, Pr input V : ±350mVp-p Positive polarity
- Synchronous input: ±300mVp-p

b) SDTV(SMPTE/EBU N10)

- RGB input VS : 1.0Vp-p Positive polarity
  V : 0.7Vp-p Positive polarity

Where each of R, G and B has sync signal or no sync signal, and where G alone has sync signal:

- YpbPr input
  Y signal WHITE(100%): 700mVp-p
  SET UP: 0mVp-p
  SYNC: 300mVp-p
  PbPr signal: 525mVp-p
  (100/0/75/0 COLOR BAR)
- Sync input: 0.3~8Vp-p Negative polarity

4. Input impedance: High impedance bridge connection or 75Ω termination [75Ω termination plug is option].

5. Return loss: Above 46dB (10MHz)

(2) Multi SDIinput module

- **DKM-501B** (Multi SDI module) [standard]
- **DKM-501A** (Multi SDI module)
  Equipped with x/sin x correction type
  high-performance video signal post filter
- **DKM-501AAV/BAV**
  (Multi-SDI module compatible with embedded analog audio output)
- **DKM-501AAVD/BAVD**
  (Multi-SDI module compatible with embedded AES/EBU audio output)

Video system

1. Input/Output terminal
   Input: BNC 2-lines
   Output: BNC 1-line (Only one selected output is active loop-through.)

2. Input signal format (HD/SD auto recognition)

a) HD-SDI
- 1035i/60, 59.94
- 1080i/60, 59.94
- 720p/60, 59.94 (Type-1 only)

b) SD-SDI (4:2:2)
- 525i/59.94
- 625i/50

3. Input Level Rating 800mVp-p±10%

4. Transmission Speed
   a) HD-SDI: 1.485Gb/s
   b) SD-SDI (4:2:2): 270Mb/s

5. Quantifying Bit Number 10 bits

6. Input/Output impedance 75Ω

7. Return loss Above 15dB (~742.5MHz)
   Above 10dB (742.5~1485MHz)

Audio system
Common to embedded audio specifications

1. Format corresponding to embedded audio input
   SMPTE272M: 480i/59.94 (4:2:2)
   576i/50 (4:2:2)
   SMPTE299M: 1035i/60, 59.94
   1080i/60, 59.94
   1080i/50
   1080i/48, 47.95
   720p/60, 59.94

2. Format Change Automatic Change

3. Sampling Frequency 48kHz(Synchronized with video lock)

Analog Audio Output (AV type)

* Analog audio level: 0dBs=0.775Vrms

1. Output Terminal XLR-5-32 (Canon 5-pin, Male)

2. Line-out Analog audio 2 channels
   Active (transformerless) balance type

3. Rated Output Level +4dBs * Load-impedance 10kΩ
   (At the time of digital audio level: -20dBFS)

4. Maximum Output Level
   +24dBs * Load-impedance 10kΩ
   (At the time of digital audio level: 0dBFS)

5. Output-Impedance 50Ω

6. Minimum Load Impedance 600Ω

7. Quntuifying Bit Number 24bits/ch

8. Emphasis 50/15 μs digital emphasis
   (Automatic discrimination)

9. Frequency Characteristic 20~20kHz±1dB

10. Signal-to-Noise Ratio Above 80dB

11. Dynamic Range Above 80dB

12. Cross Talk Above 60dB
    (1KHz at maximum output)

13. Total Harmonic Distortion Above 0.1%
    (At the time of rated output)

AES/EBU Output System (AVD Type)

* Digital audio level: 0dBFS full bit/full scale

1. Output Connector BNC (Pair Channel) 4 lines

2. Output Standard AES/EBU Standard (for monitor)

3. Output Impedance 75Ω

(3) SD-SDI input module (Option)

- **DK-801**(4:2:2 digital component module)
  * Not corresponding to embedded audio.

1. Input/Output Terminal
   BNC 2 lines (Active loop-through)
   * Signals interlocked with a channel selected on the monitor side are output according to settings in the module.

2. Input Signal Format
   4 : 2 : 2 digital component signal (525i/59.94, 625i/50)

3. Input/Output Level
   Rating: 800mVp-p±10%
   (Output level at the time of 75Ω termination)
   SCRAMBLED NRZI type

4. Transmitting Speed 270Mb/s

5. Quantitying Bit Number 10bits

6. Output Impedance 75Ω

7. Return loss Above 15dB (~270MHz)

(4) Decoder Input Module [Option]

- **DE-801** NTSC 3-line COM decoder module

1. Input/output Terminal — BNC 3-lines (Loop through)
2. Signal Format — NTSC Composite signal
3. Input Level — VS: 1.0Vp-p Positive Polarity
   V: 0.7Vp-p Positive Polarity
4. Input Impedance
   High impedance bridge connection or 75Ω termination
   [75Ω termination plug is option].
5. Return loss — Above 46dB (10MHz)

(5) Audio Level Meter Module [Option]

- **DAM-504** 4ch Embedded audio level meter
- **DAM-508** 8ch Embedded audio level meter

1. Formats corresponding to embedded input
   SMPTE272M: 480i/59.94 (4:2:2)
   576i/50 (4:2:2)
   SMPTE299M: 1035i/60, 59.94
   1080i/60, 59.94
   1080i/50
   1080i/48, 47.95
   720p/60, 59.94
2. Format Change — Automatic Change
3. Reference Level — -20dBFS
4. Number of Channels
   DAM-504: 4 channels
   DAM-508: 8 channels
5. Indication Segment — 13-segments
6. Display Device
   -∞~-25dB: Green LED
   -20~- 0dB: Amber LED

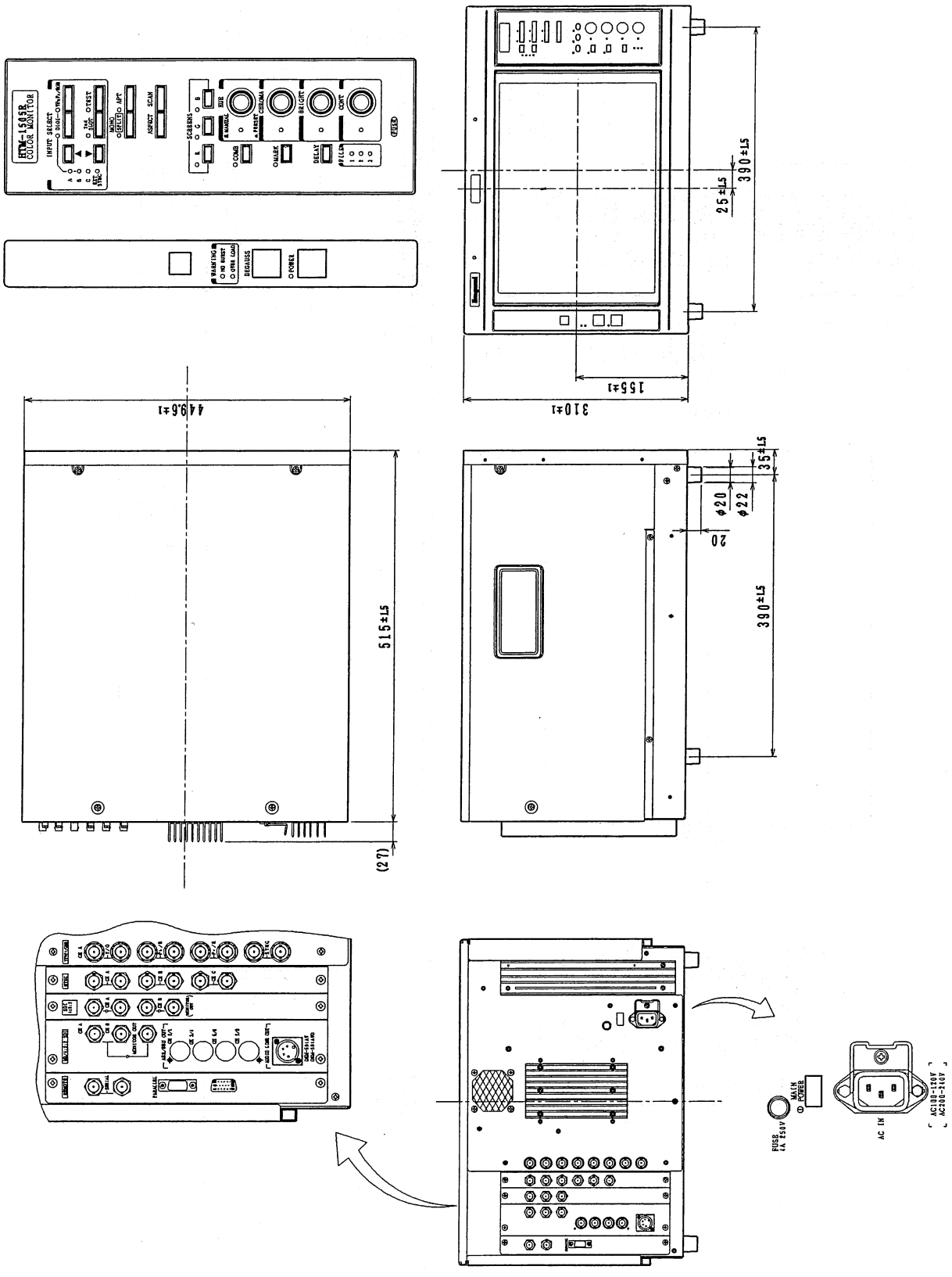
2.3 Options

DK-801	4:2:2 component module
DK-802N	4Fsc digital composite (NTSC) module
DK-8012	4:2:2/ digital module
DKH-501/502	HD-SDI Module
DE-801	NTSC 3-line COM decoder module
DE-802	PAL COM decoder module
DHC-802	Dual component module (for YPbPr/RGB input expansion)
SRC-301A	Serial remote controller
DCH-501	YPbPr/RGB input module for 1 input expansion
RCT-20A	Infrared remote controller
EX-801A	ASP-80 auto set-up probe
ASP-80	Auto set-up probe
RS-1550CS	15 type rack-mounted adapter

2.4 External View

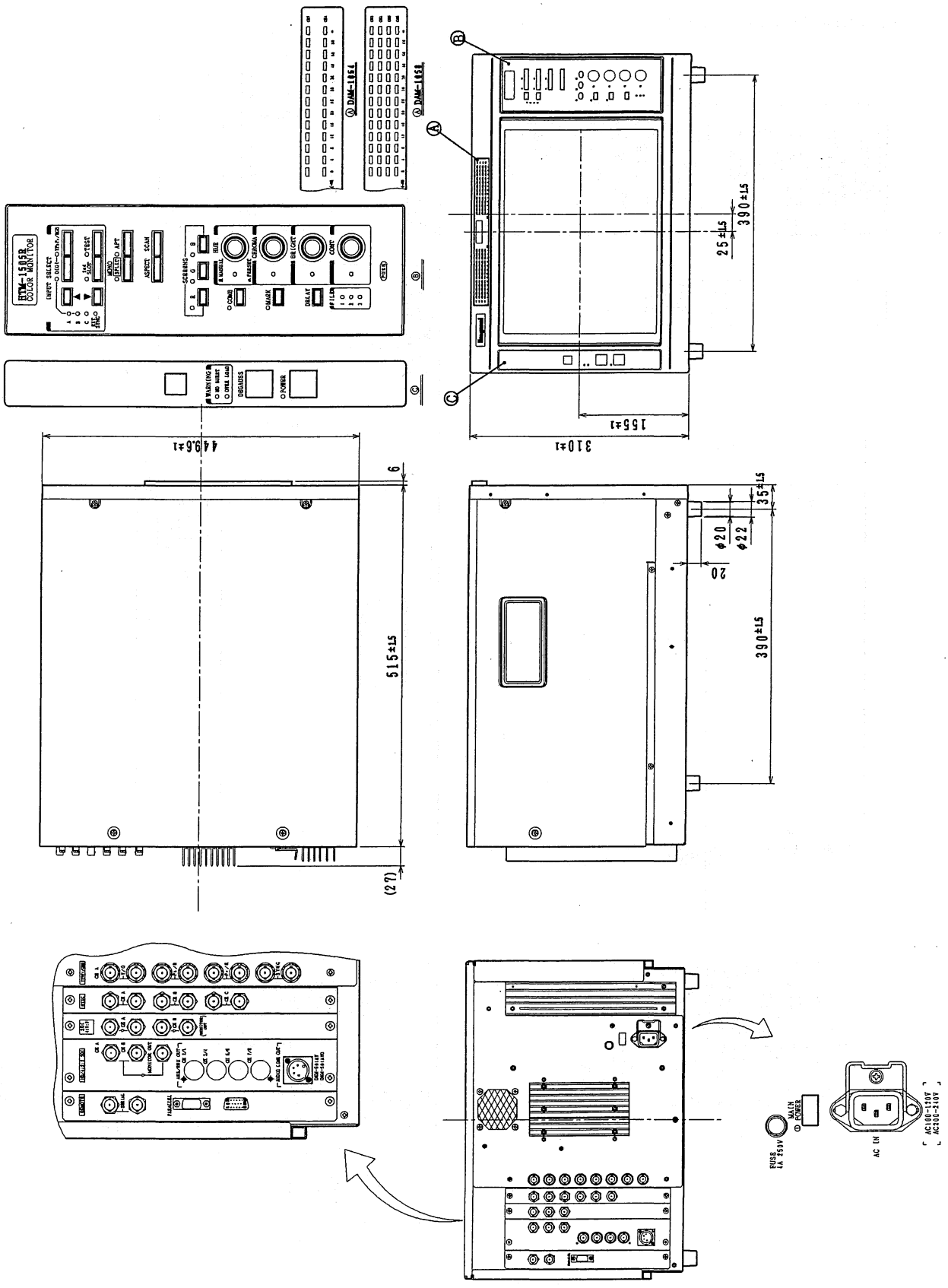
(1) HTM-1505R

[Without embedded audio level meter]



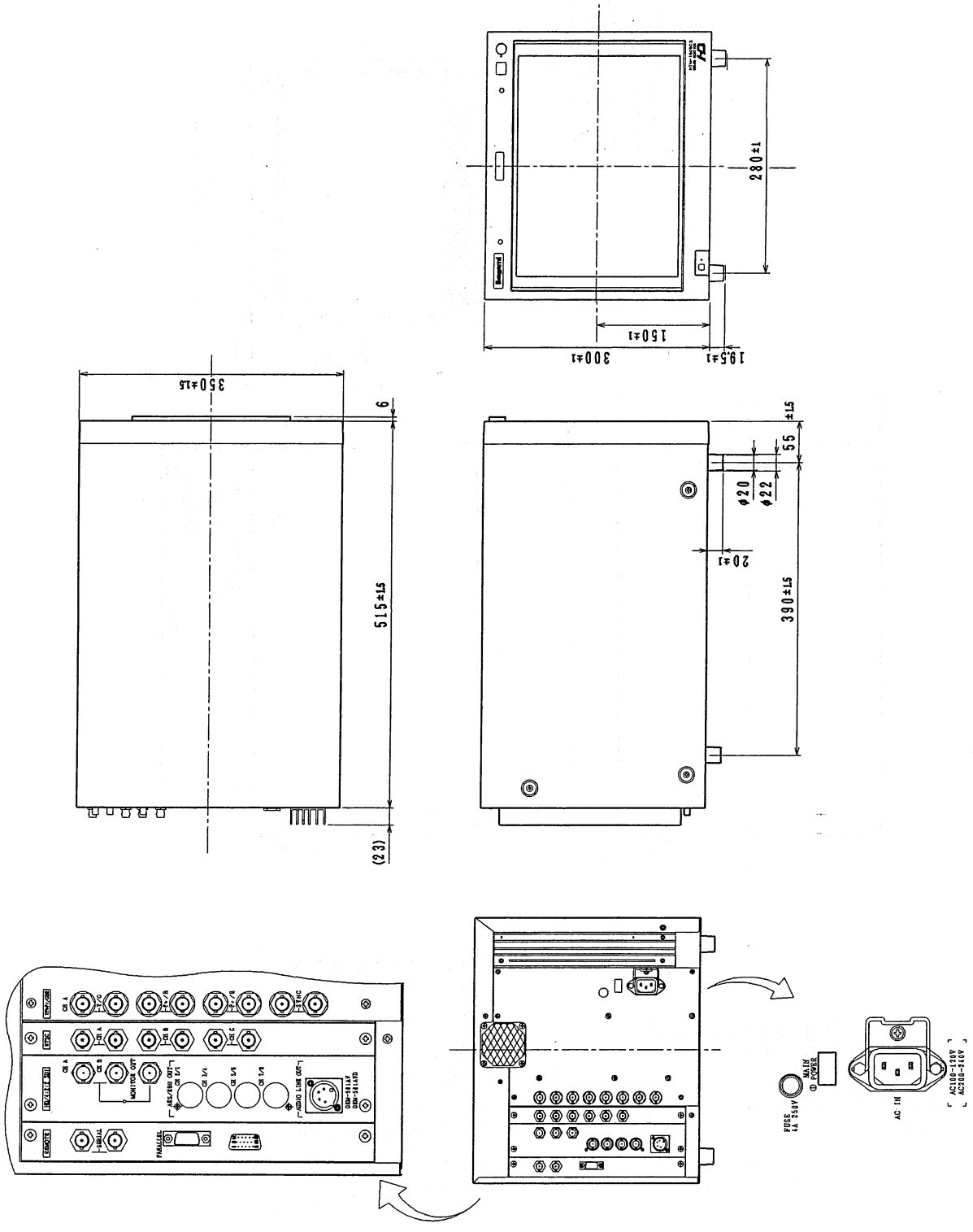
(2) HTM-1505R

[With embedded audio level meter]



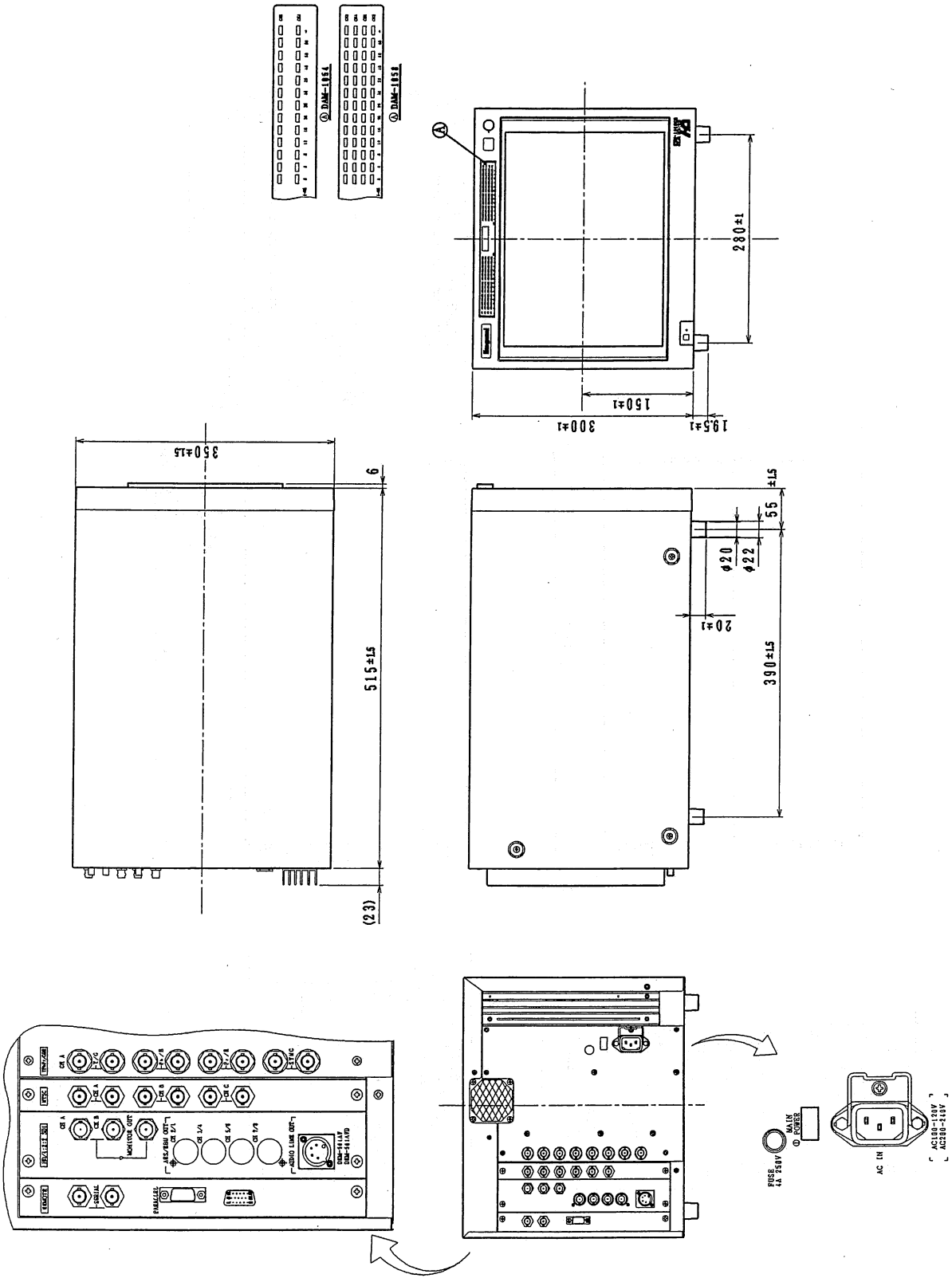
(3) HTM-1505CS

[Without embedded audio level meter]



(4) HTM-1505CS

[With embedded audio level meter]



3. Installation

CAUTION To assure safety, make connection after turning off each equipment.

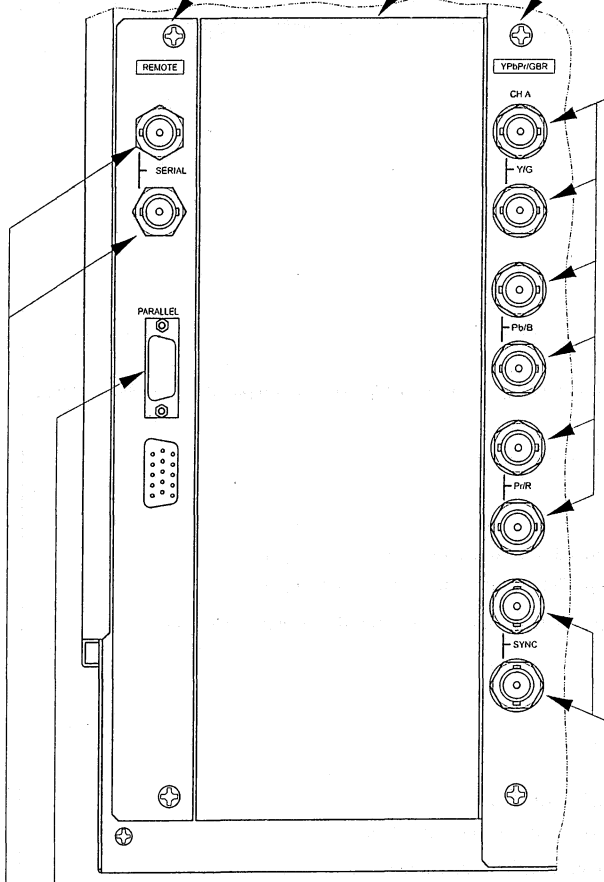
3.1 Connection to external equipment

(1) Standard module (MPU, VIDEO PROCESS)

MPU module

Option module area * Refer to the following page and thereafter:

VIDEO PROCESS module



YPbPr/GBR A channel input

- Input RGB code or YPbPr signal here.
- Formats that can be input
  - ① 525i/59.94
  - ② 625i/50
  - ③ 1035i/59.94(60)
  - ④ 1080i/59.94(60)
  - ⑤ 720p/59.94 (60) (720p corresponds to Type-1only.)
- Signal format
  Setting of HDTV/SDTV on MENU 1 - 2 is required.
  For 1080i or 1035i, setting of 1035i/1080i on MENU1-3 is also required.
- Set switching of RGB/YPbPr on MENU 1 - 4
- When loop-through connection is not done, connect termination plug.
- When optional **DCH-501** is mounted, input of 2 channels can be performed.

External synchronizing-signal input

- When setting RGB/YPbPr signal or composite signal to external synchronization, input external synchronizing signal here.
- When loop-through connection is not done, connect termination plug.

PARALLEL REMOTE input

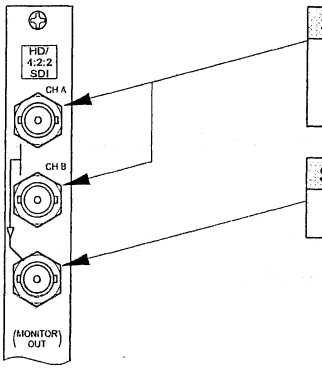
- Insert attached remote connector here.
- For pin connections refer to 3-2.

SERIAL REMOTE input

- Connect BNC cable from serial remote controller **SRC-301A** here.
- When loop-through connection is made, a maximum of 99 monitors can be controlled individually or collectively.
- When loop-through connection is not made, connect termination plug.
- Set monitor ID on menu.

(2) Multi SDI Input module

DKM-501*



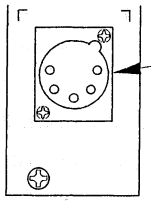
SDI A/B signal input

- Input HDTV or SDTV (4:2:2) signal into this connector.
- Discriminates input signal format automatically and controls monitor.

SDI signal output

- Outputs signal of channel that monitor selects from A/B channel of input SDI signal.

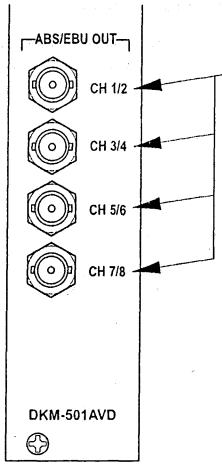
DKM-501*AV



AUDIO LINE OUT

- Select one pair channel from 4 pair channels by menu manipulation to output analog sound signal of 2 channels from this connector.
- Use output connector XLR-5-11C or equivalent.
- Pin functions
  1pin : GND
  2pin : Even number ch Hot output/3pin: Even number ch Cold output
  4pin : Odd number ch Hot output/5pin: Odd number ch Cold output
- As output is of active balance type, connect cold side to GND when using in unbalance.

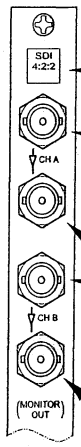
DKM-501*AVD



AES/EBU OUT

- Outputs digital audio signal of AES/EBU format.
  Formats for consumer appliances (SPDIF) are not supported.
- When connecting to 110Ω impedance equipment, use converter.

(3) SD-SDI input module



DS-SDI module ··· Following 3 types are available:

- SDI 4:2:2 — D1 Digital component module (**DK-801**)
- SDI 4FscN — D2/D3 NTSC digital composite module (**DK-802N**)
- SDI 4:2:2 4FscN — D1/D2/D3 Digital module (**DK-8012**)

SD-SDI A/B signal input

- Input SD-SDI signal into this connector according to the following mounted modules:
  ① **DK-801** 4 : 2 : 2 Serial Digital Component Signal
  ② **DK-802N** NTSC Serial Digital Composite Signal
  ③ Corresponds to both signals of **DK-8012** ① and ② (Format is automatically detected.)
- When this module is mounted together with HD-SDI module, it is assigned as second slot. Select by pressing 2nd SLOT switch.

SD-SDI A signal output

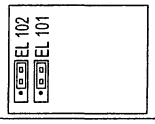
- Outputs SD-SDI signal input into A channel from this connector.

SD-SDI B signal output

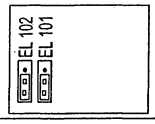
- Outputs SD-SDI signal input into B channel from this connector.
- It is possible to output signals selected by monitor from this connector according to setting of connector in module.

[How to Set]

NORMAL (Factory default)

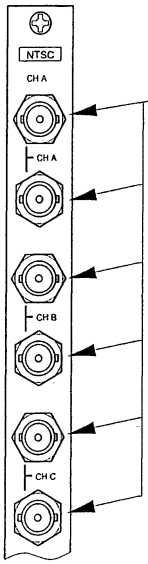


MONITOR OUT



(4) NTSC 3-line decoder input module

DE-801

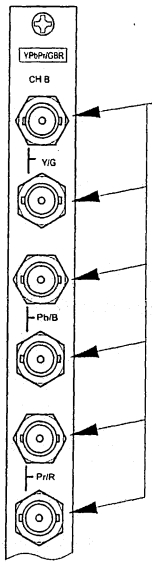


NTSC analog composite input

- Input NTSC analog composite signal into this connector.
- When loop-through connection is not made, connect termination plug.
- When using by external synchronization, input external synchronizing signal into SYNC input connector of VIDEO PROCESS module of (1).

(5) Dual component input module

DCH-501

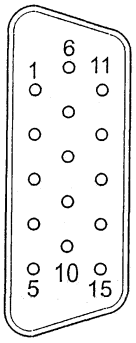


YPbPr/GBR B channel input

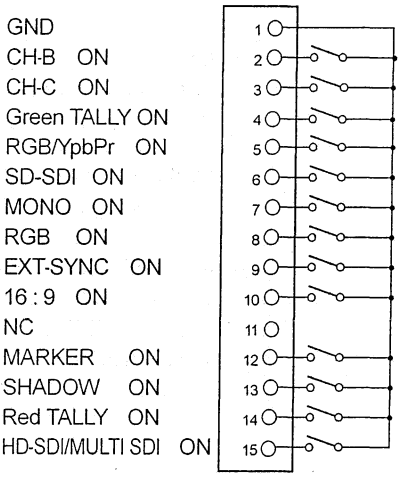
- Input RGB signal or YpbPr signal into this connector.
- When loop-through connection is not made, connect termination plug.
  ① 525i / 59.94
  ② 625i / 50
  ③ 1035i / 59.94, 60
  ④ 1080i / 59.94, 60
  ⑤ 720p / 59.94 (60) ··· (Corresponds to Type-1 only.)
- To set signal format, setting of HDTV/SDTV on MENU 1-2 is required.
  For 1080i or 1035i, setting of 1035i/1080i on MENU1-3 is also required.
- Set switching of RGB or YPbPr on MENU
- When using by external synchronization, input external synchronizing signal into SYNC input connector of ①.

3.2 Connection of parallel remote connector

(1) Pin function



View from rear side of monitor



< Wiring of remote connector >

Pin No.	Name	Function
1	GND ON	To perform ON control, connect each remote terminal to this No. 1 pin.
2	CH-B ON	To change selected input to channel B, connect to No. 1 pin. * When both No. 2 and 3 pins are open, choose channel A.
3	CH-C ON	To change selected input to channel C, connect to No. 1 pin. * When both No. 2 and 3 pins are open, choose channel A.
4	Green Tally ON	To turn on GreenTALLY, connect to No. 1 pin.
5	RGB/YPbPr ON	To select component video (RGB/YpbPr) input, connect to No. 1 pin. To switch between channels A/B, use together with No. 2 pin. * When No. 5, No. 6 and No. 15 pins are all open, select analog composite.
6	SD-SDI ON	To select digital video (SD-SDI) input, connect to No. 1 pin. To switch between channels A/B, use together with No. 2 pin. * When No. 5, No. 6 and No. 15 pins are all open, select analog composite.
7	MONO ON	To change setting of COLOR/MONO to RGB, connect to No. 1 pin.
8	RGB ON	To change setting of YpbPr/RGB to RGB, connect to No. 1 pin.
9	EXT-SYNC ON	To change synchronization of analog input to external synchronization (EXT SYNC), connect to No. 1 pin.
10	16 : 9 ON	To change setting of aspect (4:3/16:9) to 16:9, connect to No. 1 pin.
11	N.C	Idle terminal
12	MARKER ON	To turn on 4:3 marker, connect to No. 1 pin.
13	SHADOW ON	To turn on SHADOW, connect to No. 1 pin.
14	Red TALLY ON	To turn on R TALLY, connect to No. 1 pin.
15	HD-SDI/Multi SDI ON	To select HD-SDI or Multi-SDI input module, connect to No. 1 pin. To switch between channels A/B, use together with No. 2 pin. * When No. 5, 6 and 15 pins are all open, select analog composite.

(2) Connectors used (standard accessories)

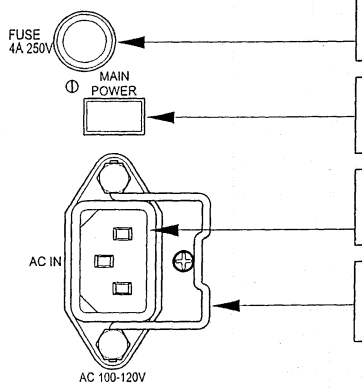
D-sub 15 pin (male) miniature type

- Connector: HDB-15M (3011-15) made by Japan Aviation Electronics Industry, Ltd
- Case: HE-C8-J9-F2-1 made by Japan Aviation Electronics Industry, Ltd.

4. Daily Adjustment

[HTM-1505R model]

4.1 Power supply



① FUSE
Provided for overcurrent protection.
If it has fused, repair faulty part and then insert rated 4A (250V) fuse.

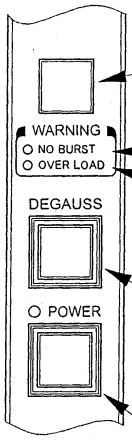
② MAIN POWER Switch
When operating monitor, turn on this switch, and then turn on POWER switch on front panel.

③ AC POWER Input Connector
Insert attached AC cable here and supply AC power to it.

④ Locking fixture
To prevent coming off of AC plug, lock with this fixture after inserting AC plug.

Fig. 4-1 Power unit on rear panel

4.2 Name and function of front left panel



① Infrared sensor window
Infrared sensor window for **RCT-20A** wireless remote controller.

② NO BURST LED
Operates only when composite input signal is selected.
Lights up when no burst is added to selected composite signal (monochrome signal), or when color-killer circuit is operated.

③ OVER LOAD
Lights up when ABL circuit is operated (with brightness excessively increased).
When monitor is continuously used with this LED turned on for a long period of time, CRT may degrade. Use with brightness lowered.

④ DEGAUSS Switch
To demagnetize CRT, turn it on.
(When power is turned on, monitor performs demagnetizing of CRT automatically.)
Pressing this switch continuously is ineffective.
To demagnetize sequentially, press this switch again after lapse of 2 to 3 minutes.

⑤ POWER Switch and LED
Used to turn ON/OFF power to monitor. LED is on when power supply is turned on.
When starting monitor, be sure to turn on MAIN POWER switch on rear panel.
Usually, turn ON/OFF with this switch.

Fig. 4-1 Front left panel

4.3 Name and function of front control section

(1) Name and function of each part on front panel

HTM-1505R

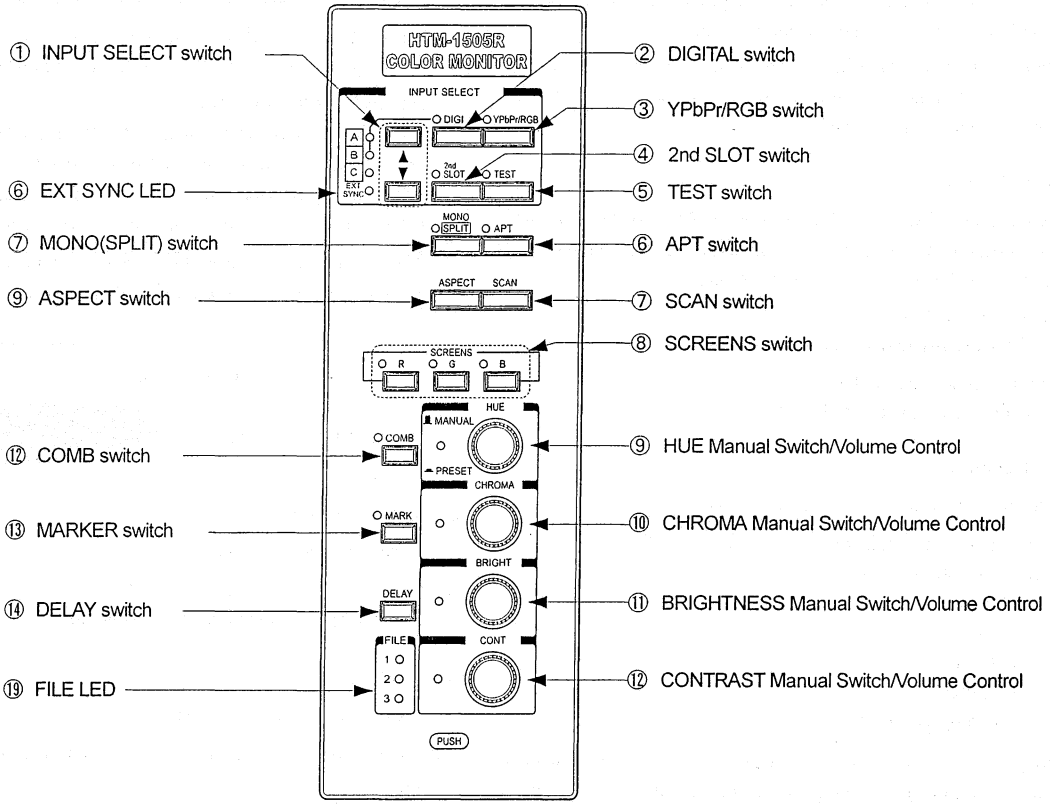


Fig. 4-3-1 Front panel

Each phrase in the explanation denotes the following meaning.
- **SDTV**: 525i, 625i
- **HDTV**: 1035, 1081i,720p
- **SD-SDI**: SDI of SDTV(525i, 625i)
- **HD-SDI**: SDI of HDTV(1035i,1080i,720p)

① INPUT SELECT switch

- Change input channels A/B/C of each module by means of ▲▼switch. It does not operate for module (**DKH-501**) with input of only one channel.
- Setting of INT/EXT of SYNC is memorized at each channel (A, B, C, YPbPr/RGB-A, YPbPr/RGB-B) of analog input and changes to setting side simultaneously with channel switching automatically.
- Setting of 4:3/16:9 of ASPECT is memorized at each channel (A, B, C, YPbPr/RGB-A, YPbPr/RGB-B, SDI-A, SDI-B) regardless of format and changes to setting side simultaneously with channel switching automatically.

② DIGITAL switch

- To select MULTI-SDI, HD-SDI, and SD-SDI module, turn it ON.
- The method of switching varies as follows according to the mounting condition of SDI module.
  a) When only 1 module is mounted:
  It can be selected by turning on DIGITAL switch.
  b) When 2 kinds of SDI modules are mounted:
  MULTI-SD or HD-SDI can be selected by means of this switch, but when selecting SD-SDI, turn on 2nd SLOT switch, too.
- Setting of 4:3/16:9 of ASPECT is memorized at each channel regardless of format and changes to setting side simultaneously with channel switching automatically.

③ YPbPr/RGB switch

- To select YPbPr/RGB input, turn it on.
- Set switching of YPbPr and RGB on MENU-Item 4.
- Setting of INT/EXT of SYNC is memorized at each channel (A, B) in case of YPbPr/RGB input and changes to setting side simultaneously with channel switching automatically.
- Setting of 4:3/16:9 of ASPECT is memorized at each channel regardless of format and changes to setting side simultaneously with channel switching automatically.

④ 2nd SLOT switch

- When 2 kinds of SDI modules (example: DKM-501+DK-801) or 2 kinds of decoder modules (example: DE-801+DE-802) are mounted, 2nd SLOT is changed by means of this switch.

  a) In case of SDI module
  SD-SDI is assigned to 2nd SLOT.

  b) In case of decoder module
  DE-802 is assigned to 2nd SLOT.

⑤ TEST switch

- To change to built-in TEST signal, turn it on.
- TEST signal (standard) incorporates the following format:
  Set switching on MENU-Item 5.
  525i/59.94
  625i/50
  1035i/60
  1080i/60
  720p/60(Type-1only)
- Setting of 4:3/16:9 of ASPECT is memorized at each channel regardless of format and changes to setting side simultaneously with switching automatically.
- A push on switch outputs the following 5 kinds of signals one by one.

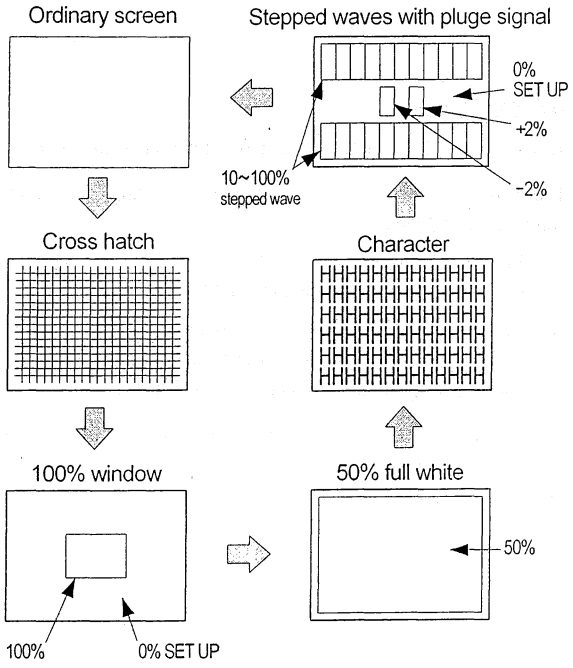


Fig. 4-3-3 TEST Signal

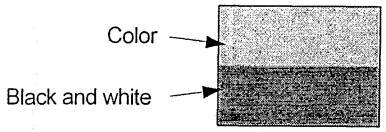
⑥ EXT SYNC LED

- When SYNC INT/EXT is set to EXT side, LED will light up.

⑦ MONO(SPLIT) switch

- To change color signal into monochrome status, turn it ON.
- When FORCED switch in drawer panel is turned on with MONO switch turned on, wideband MONO mode is selected.

  Wideband MONO mode
  With NTSC composite signal (**DE-801** module) selected, ordinary MONO image is filtered by COMB or TRAP to brightness (Y) signal. However, any filtering is not performed in wideband MONO mode and a flat frequency characteristic is obtained without any filtering.
- When continuing to press the switch for 2 to 3 seconds, the screen becomes a split display (upper half: color, lower half: black and white).



⑧ APT switch

- To correct aperture, turn it on.
- For SDTV format signal of YPbPr/RGB input, and D1 format signal of SD-SDI, aperture function does not operate.

⑨ ASPECT switch

- Used to choose between 4:3/16:9.
- Used to enlarge display of 4:3 area at the time of HDTV signal of 16:9 image.
- Setting of aspect is memorized in the following 7 different input channels, and it is automatically set to the setting side simul- taneously with channel change. Therefore, no setting is required when input channel and signal format are changed.

  Analog composite input ch A/B/C
  YPbPr / RGB input ch A/B
  SDI input ch A/B

  Example: When chA is set to 4:3 and chB is set to 16:9, aspect will change automatically only by switching between chA/chB.

⑩ SCAN switch

- Used to switch between normal scan and under scan.

⑪ SCREENS switch

- To display each screen color (red, green and blue) independently, turn on each switch.
  When all switches are turned on, screen display becomes color display and all LED's are off.

⑫ COMB switch (Available only when **DE-801** [option] is mounted)

- To operate 3-line COM filter circuit, turn it on.
  To operate trap circuit, turn it off.
- It operates at the time of analog/digital (D2) NTSC composite signal input.

⑬ MARKER switch

- To indicate various markers, turn it on.
- Each time switch is pressed, the kind of marker changes in the order shown in Fig. 4-9. When switch is continuously pressed for 2 to 3 seconds after indicating all markers, the indicated marker is off.
- 4:3 shadow is used in combination.
  Three kinds ⑫, ⑬ and ⑭ shown in Fig. 4-9 are available.

⑭ DELAY switch

- Used to monitor the status of horizontal/vertical blanking period.
  Each time this switch is pressed, mode changes as follows:

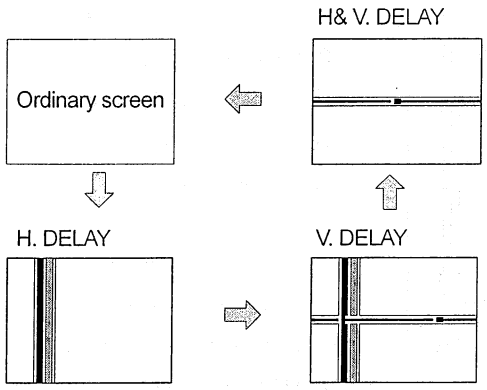


Fig. 4-3-4 DELAY mode

⑮ HUE manual switch/volume control

- Used to switch the hue between manual and preset and change manual data. When knob is pressed, knob will project (LED lights up), entering into manual operation mode.
- Turn knob in manual operation mode and change manual data.
- HUE is operative only when analog/digital (D2) NTSC composite signal is input.

⑯ CHROMA manual switch/volume control

- Used to switch the chroma between manual and preset and change manual data. When knob is pressed, knob will project (LED lights up), entering into manual operation mode.
- Turn knob in manual operation mode and change manual data.

⑰ BRIGHTNESS manual switch/volume control

- Used to switch the brightness between manual and preset and change manual data. When knob is pressed, knob will project (LED lights up), entering into manual operation mode.
- Turn knob in manual operation mode and change manual data.

⑱ CONTRAST manual switch/volume control

- Used to switch the contrast between manual and preset and change manual data. When knob is pressed, knob will project (LED lights up), entering into manual operation mode.
- Turn knob in manual operation mode and change manual data.

⑲ LED

- Indicates the status of FILE 1 to FILE 3 switches in the drawer panel by lighting up LED. It is set to "Reference" status with no file selected.
- The following color-temperature data are set in FILE 1 to FILE 3 at the time of factory shipment.

[Color temperature of each file at the time of factory shipment]

- Reference: 6500k
- FILE 1: 6500k
- FILE 2: 9300k
- FILE 3: 6500k

(2) Name and function of drawer panel

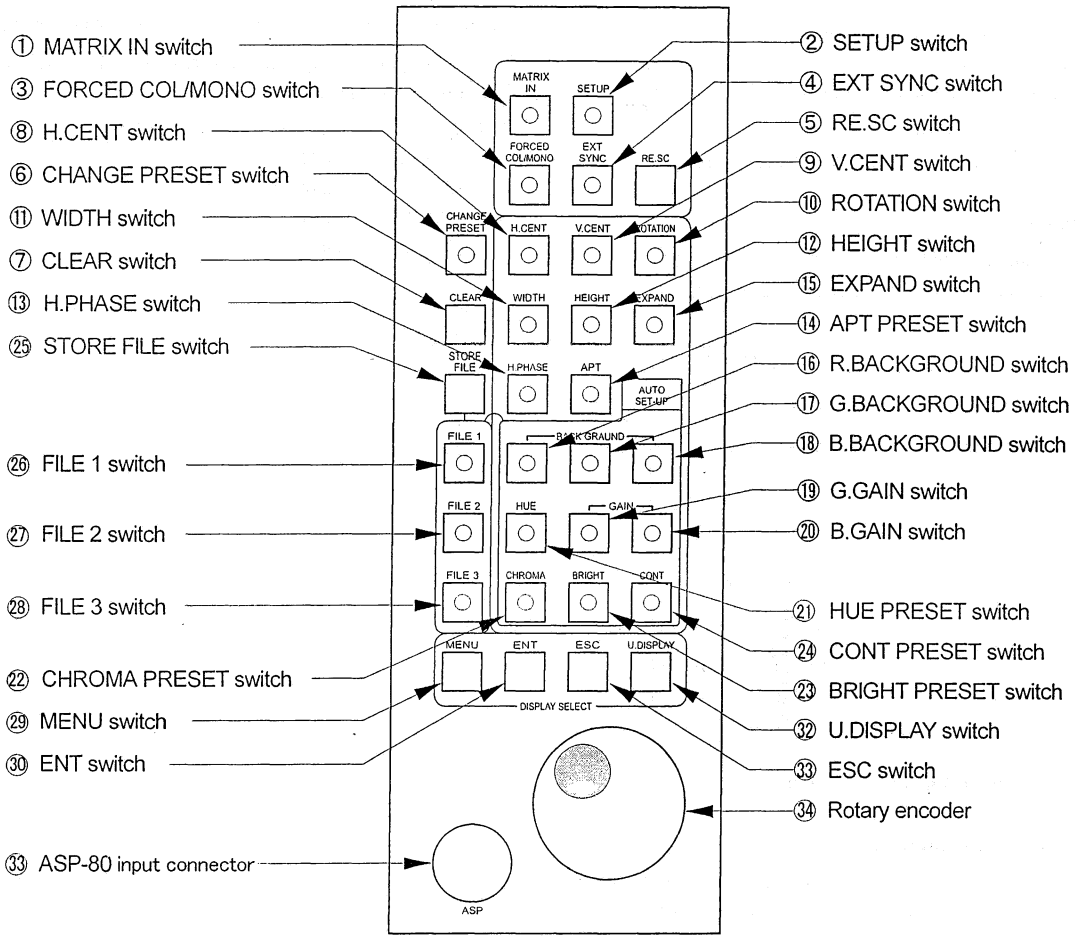


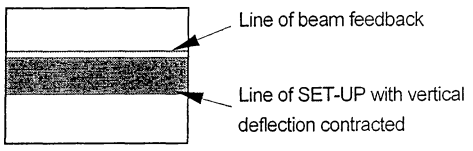
Fig. 4-3-5 Drawer panel operating unit

① MATRIX IN switch

- Used to change the matrix ratio of luminance signal to color-dif ference signal.
- When it is turned on (LED lights up), matrix akin to usual home receivers is available.

② SET UP switch

- When it is turned on (SET-UP side / LED lights up), vertical deflection is contracted, making the adjustment of white balance (R/G/B BACK GROUND) easier.



③ FORCED COL/MONO switch

(Available only when NTSC decoder is mounted)

- Function of this switch changes as follows according to the status of MONO switch on the front panel. This switch functions only when analog/digital (D2) NTSC composite signal is input.

FORCED	MONO	Functional description
OFF	OFF	[AUTO COLOR] COLOR/MONO circuit operation of decoder changes automatically according to the existence and non existence of burst of composite signal.
ON	OFF	[FORCED COLOR] COLOR circuit operates forcedly independently of the existence and nonexistence of burst of composite signal.
OFF	ON	[NORMAL MONO] Ordinary MONO status. COMP or TRAP filter circuit is operating according to the status of COMB switch when composite signal is input.
ON	ON	[WIDE BAND MONO] Both COMB and TRAP filter circuits do not operate in the above-mentioned MONO status. The frequency characteristic of luminance signal is flat.

④ SYNC INT/EXT switch

- To operate by external synchronization when analog signal is input, set this switch to EXT side. However, it does not operate at the time of DIGITAL signal input.

⑤ RE.SC switch (Available only when NTSC decoder is mounted)

- Used to check that no sub-carrier leaks in input signal.
- Press the switch while monitoring the screen. If HUE changes, it shows that sub-carrier leaks in the retrace-line section.
  When the switch is released, it is automatically turned off.

⑥ CHANGE PRESET switch

- To change or memorize each preset data, press this switch.
- Pressing the switch blinks each preset LED within the frame all at once. When selecting from among the blinking switch, the LED lights up, making it possible to change that data. Then, data can be changed successively by pressing other switch.
- Each data has the following individual data:

PRESET	FILE	FORMAT	SCAN	Number of data
HUE	●	×	×	4
CHROMA	●	×	×	4
BRIGHT	●	×	×	4
CONT	●	×	×	4
G, B GAIN	●	×	×	4
R, G, B BKG	●	×	×	4
HEIGHT	×	●	●	14 (17)
WIDTH	×	●	●	14 (17)
H. CENT	×	●	×	4 (5)
V. CENT	×	●	×	4 (5)
H. PHASE	×	●	×	4 (5)
TRAPEZOID	×	●	×	4 (5)
SIDE PIN	×	●	×	4 (5)
ROTATION	×	×	×	1
APT	×	×	×	1

FILE: REFERENCE, FILE 1, FILE 2, FILE 3
FORMAT: 525i, 625i, 1035i, 1080i, 720p(Type-1)
SCAN: 4 : 3 normal, 4 : 3 under, 16 : 9 normal, 16 : 9 under
( ): Number of data for Type 1

* Do not change SCAN and channel while changing each preset data.

* To enable each of the following preset switches, enable that function:

a) APT switch
Turn on APT switch on the front panel.

b) HUE switch
When manual switch of HUE on the front panel is on, set the switch to PRESET. It is enabled only while NTSC composite signal is selected.

c) CHOROMA switch
When manual switch of CHROMA on the front panel is on, set the switch to PRESET.

d) BRIGHT switch
When manual switch of BRIGHT on the front panel is on, set the switch to PRESET.

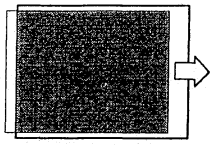
e) CONT switch
When manual switch of CONT on the front panel is on, set the switch to PRESET.

⑦ CLEAR switch

- To display the preset screen by means of CHANGE PRESET key and WHITE BALANCE key and select an item to be changed, press this switch.
- When the key is pressed while preset data is being changed, it is possible to clear the data being changed and return it to the former data.

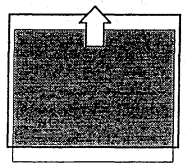
⑧ H.CENT switch

- Used to adjust the horizontal position of the available picture area.



⑨ V.CENT switch

- Used to adjust the vertical position of the available picture area.

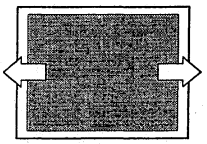


⑩ ROTATION switch

- Used to correct the deviation of PURITY that occurs due to the influence of earth magnetism when the direction of monitor is changed. Make the whole screen uniformly monochrome by means of SCREEN key.
- When using the monitor in a relay car or similar situation where the direction of the monitor always changes, set elbit connector (EL 561) of DEF board to OFF position to make the rotation circuit inoperative.
  It has been set to "ON" at the time of factory shipment.

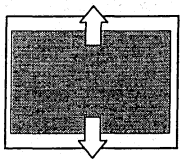
⑪ WIDTH switch

- Used to adjust the breadth of available screen area for each scanning size and aspect.



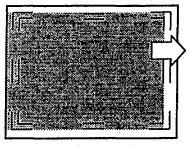
⑫ HEIGHT switch

- Used to adjust the height of available screen area for each scanning size and aspect.



⑬ H.PHASE switch

- Used to adjust the horizontal phase of picture.
- Indicate 100% of marker and adjust so that image may come within 100% of the frame.



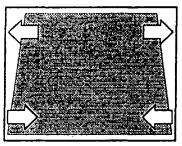
⑭ APT switch

- Used to adjust aperture level.
- This switch does not operate, unless APT switch on the front panel is turned on (LED lights up) beforehand.

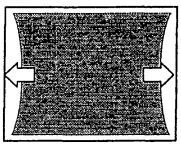
⑮ EXPAND switch

- Used to adjust side pin and trapezoidal distortion.
- Pressing this switch can switch between TRAPEZOID (trapezoidal distortion) and SIDE PIN alternately.

(TRAPEZOID)



(SIDE PIN)



⑯ R.BACKGROUND switch

- Used to adjust the white balance (red component) of low light portion.
- For how to adjust, refer to 4-10 (3).

⑰ G.BACKGROUND switch

- Used to adjust the white balance (green component) of low light portion.
- For how to adjust, refer to 4-10 (3).

⑱ B.BACKGROUND switch

- Used to adjust the white balance (blue component) of low light portion.
- For how to adjust, refer to 4-10 (3).

⑲ G.GAIN switch

- Used to adjust the white balance (green component) of highlight portion.
- For how to adjust, refer to 4-10 (3).

⑳ B.GAIN switch

- Used to adjust the white balance (green component) of highlight portion.
- For how to adjust, refer to 4-10 (3).

㉑ HUE switch

- Used to adjust HUE data.
- Circuit operates only when analog/digital (D2) NTSC composite signal input equipped with NTSC decoder module **DE-801** is selected.
- For how to adjust, refer to 4-10 (4).

㉒ CHROMA switch

- Used to adjust CHROMA data.
- For how to adjust, refer to 4-10 (4).

㉓ BRIGHT switch

- Used to adjust BRIGHTNESS data.
- It does not operate at the time of DELAY.
- For how to adjust, refer to 4-10 (1).

㉔ CONT switch

- Used to adjust CONTRAST data.
- For how to adjust, refer to 4-10 (2).

㉕ STORE FILE switch

- Used to copy color-temperature data currently displayed to FILE 1 to FILE 3.
- When the switch is pressed, FILE 1 to FILE 3 blink, and when the FILE switch of storage location is pressed, the LED lights up to copy the data
- Preset data to be stored are the following 9 kinds of data enclosed with the white frame on the panel:

HUE	CHROMA	BRIGHT	CONT	
R.BKG	G.BKG	B.BKG	G.GAIN	B.GAIN

㉖ FILE 1 switch

- Turn it on when outputting data that is stored in FILE 1, or when memorizing data in it.

㉗ FILE 2 switch

- Turn it on when outputting data that is stored in FILE 2, or when memorizing data in it.

㉘ FILE 3 switch

- Turn it on when outputting data that is stored in FILE 3, or when memorizing data in it.

㉙ MENU switch

- Used to call various menus.

㉚ ENT switch

- Used to finalize the menu manipulation.

㉛ ESC switch

- Used to return from the menu manipulation.

㉜ U.DISPLAY switch

- It is not available in the present version.

㉝ ASP-80 Connector

- Connector provided to connect auto set-up probe **ASP-80** [option].

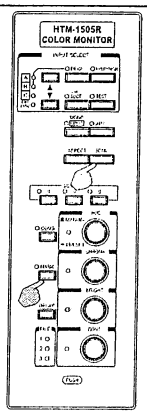
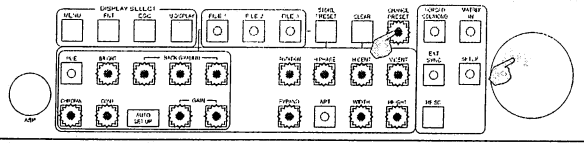
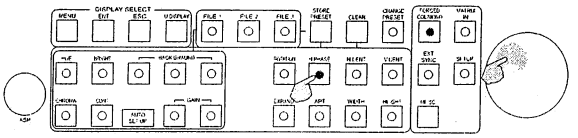
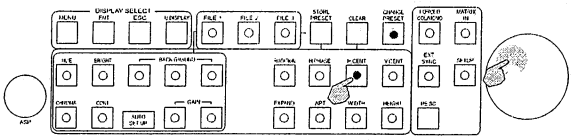
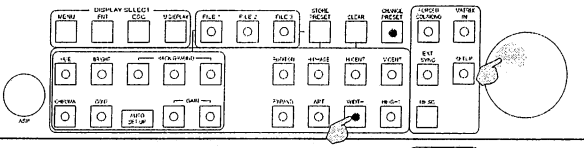
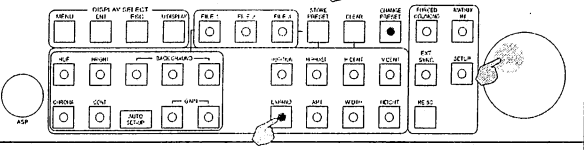
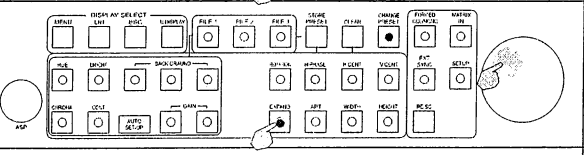
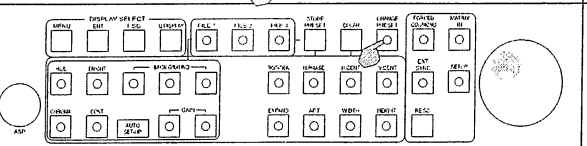
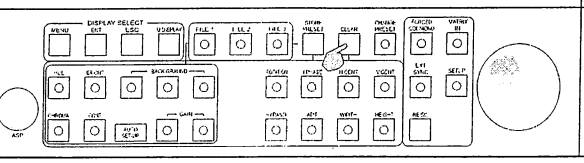
㉞ Rotary Encoder

- Used to change preset data in the drawer panel and select a mode of menu, etc.

4.4 Entry and Change of Data

(1) Entry and change of preset data

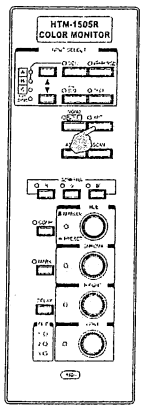
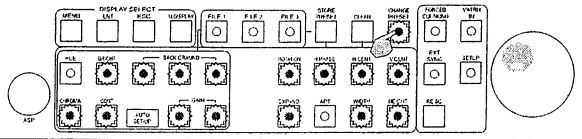
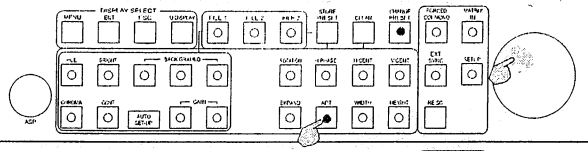
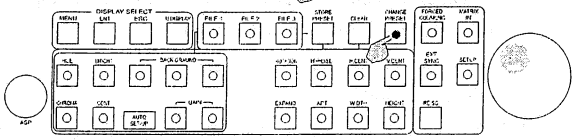
[Example-1] Change of H.PHASE, H.CENT, V.CENT, WIDTH, HEIGHT, TRAPEZOID, SIDE PIN

1		Set SCAN size to UNDER SCAN mode by means of SCAN switch, and display 10-division cross hatching marker by means of MARKER switch.
2		Pressing CHANGE PRESET switch blinks PRESET switch.
3		**[Changing the screen phase]** Turn on H. PHASE switch and change the phase so that the screen may come within the frame of marker with the encoder.
4		**[Changing the centering]** Turn on H. CENT switch for horizontal direction and turn on V. CENT switch for vertical direction. Then change the centering so that the screen phase may come to the center with the encoder.
5		**[Changing the size]** Turn on H. CENT switch for horizontal direction and turn on V. CENT switch for vertical direction. Then change the centering so that the screen phase may come to the center with the encoder.
6		**[Changing the trapezoidal distortion]** Turn on EXPAND switch again and change the TRAPEZOID (trapezoidal distortion) with the encoder.
7		**[Changing the side pin]** When EXPAND switch is turned on again, SIDE PIN mode is selected. Change SIDE PIN with the encoder.
8		**[Entry of data]** After completion of data change, press CHANGE PRESET switch to register changed data.
9		**[Clearing the data]** When CLEAR switch is pressed before registering data at the above-mentioned Item 8, the data that was changed until this step is cleared, returning to the former unchanged data.

Notes Data of H.PHASE, H.CENT, V.CENT, WIDTH, HEIGHT, TRAPEZOID and SIDE PIN is saved as individual data for every format of each signal. For WIDTH and HEIGHT, data for every SCAN size and aspect is saved. Therefore, when the following switching is performed during data change, the data that is currently changed will be cleared. When changing other formats and SCAN size, regisger data beforehand.

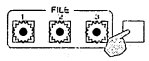
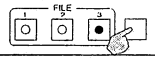
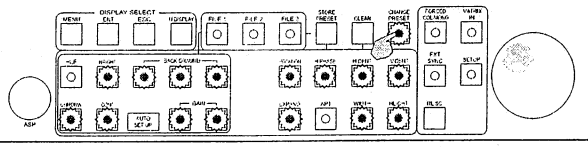
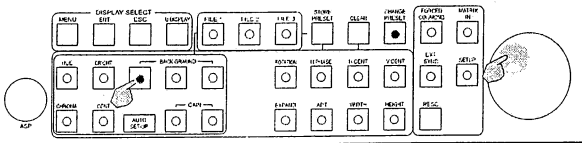
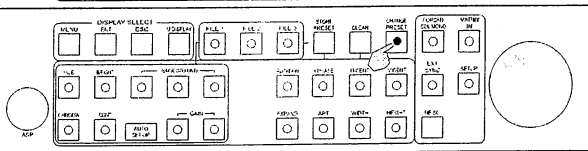
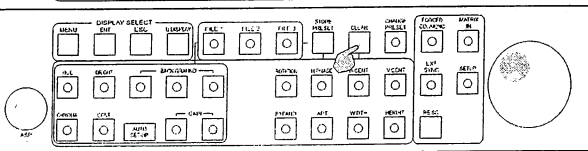
■ Switch of input channel ■ SCAN switch ■ ASPECT switch

[Example -2] Changing APT

1		Turn on APT switch.
2		Pressing CHANGE PRESET switch blinks all PRESET switches.
3		Turn on APT PRESET switch and change the aperture corrections with the encoder.
4		**[Entry of data]** After completion of data change, press CHANGE PRESET switch to register changed data. When CLEAR switch is pressed before registering data, the data returns to the former unchanged data.

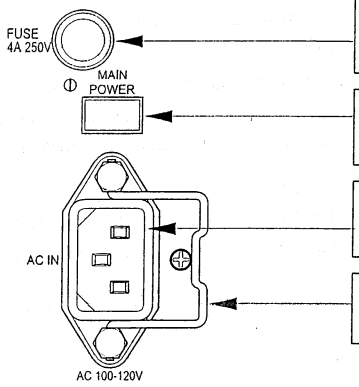
(2) Change and entry of file data

[Example -1] Copying reference data (file off status) to FILE 3 and changing its color temperature

1		**[Entry of file]** Pressing STORE FILE switch blinks FILE 1 to FILE 3 switches.
2		Press FILE 3 switch to copy present file data to FILE 3.
3		Press CHANGE PRESET switch. Each PRESET switch blinks.
4		Turn on R.BACK-GROUND switch and change data with the encoder. Then press PRESET switch and change color temperature.
5		**[Entry of data]** After completion of data change, press CHANGE PRESET switch to register changed data.
6		**[Clearing of data]** When CLEAR switch is pressed before registering data at the above-mentioned Item 5, the data being changed is cleared, returning to the former unchanged data.

[Model HTM-1505CS]

4.5 Power Supply



① **FUSE**
Provided to protect from overcurrent.
If it has fused, repair faulty part and then insert rated 4A (250V) fuse.

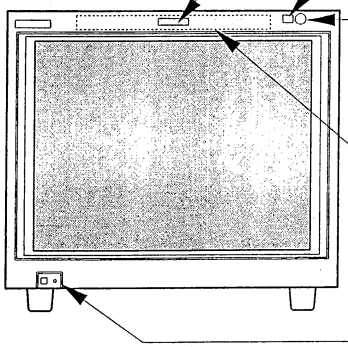
② **MAIN POWER switch**
When operating monitor, turn on this switch, and then turn on POWER switch on front panel.

③ **AC Power input connector**
Insert attached AC cable here and supply AC power to it.

④ **Locking fixture**
To prevent coming off of AC plug, lock with this fixture after inserting AC plug.

Fig. 4-4 Power unit on rear panel

4.6 Name and function of front side



① **Red And Green TALLY**
Light emitting part of TALLY

② **Infrared sensor window**
Infrared sensor window for **RCT-20A** wireless remote controller [option]

③ **ASP-80 Connector**
Connect auto set-up probe **ASP-80** [option].

⑤ **Embedded audio level meter** (Only for model equipped with **DAM-504** and **508**)
Displays level of embedded audio superposed to SDI signal

④ **POWER Switch and LED**
Used to turn ON/OFF power to monitor.
When starting monitor, be sure to turn on MAIN POWER switch on rear panel.
Usually, turn ON/OFF with this switch.

Fig. 4-5 Front side of the monitor

4.7 Operation for Wireless Remote Controller

The operational explanation for infrared remote controller **RCT-20A** is mentioned below:
RCT-20A can also be used for Model HTM-1505R.

(1) Cautions for using remote controller

① "REM**" Indication on Screen

When remote control operation is not performed, do not set the remote controller in active status (with "REM**" displayed in the upper left of the screen) for a long period of time.
It becomes the cause of burning of CRT.
Turn off "REM**" indication with END key after completion of operation.

② Direction of Remote Controller

Train the remote controller to the monitor so that the sensor window of the monitor turns within a range of 30° from the axis between the sensor window and the transmitter of the remote controller rightward and leftward.
The range of infrared signal is 7m on the axis.
If it does not operate within this range, there is a possibility that the battery is dead. Change for a new battery.

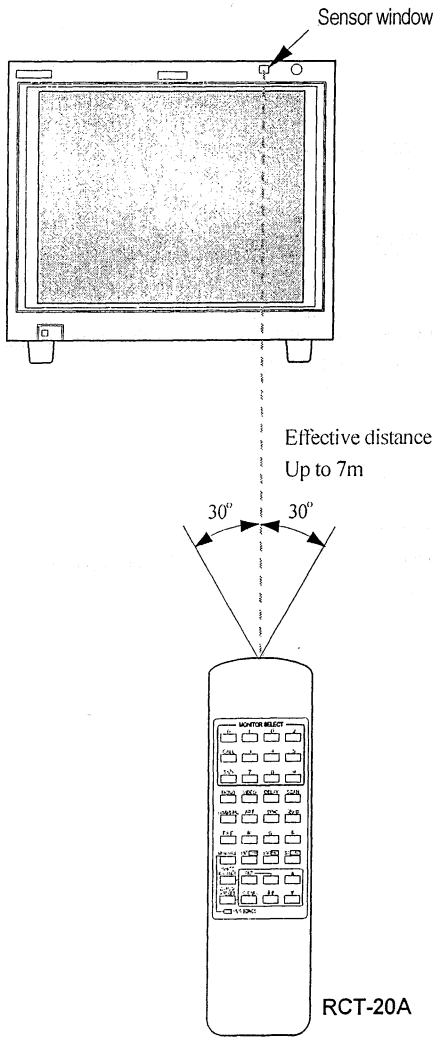


Fig. 4-6 Transmission and reception of wireless remote controller

(2) Initialization of remote control operation

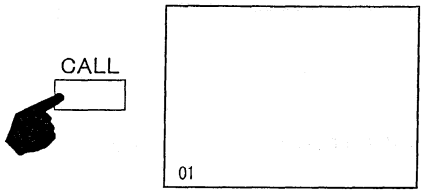
Perform the following set-up before starting remote control operation.

① Setting a remote ID number

When there are two or more monitors, set ID numbers in accordance with the following procedure:
ID number "01" has been set to each monitor at the time of shipment.
Turn on each monitor one at a time so that two or more monitors do not operate simultaneously, and then set ID number (01 to 99) to each monitor.

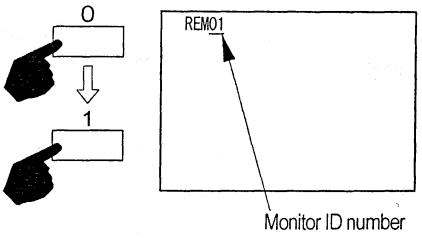
a) Checking the present remote ID

Pressing CALL key indicates the present ID number ("01" at the time of shipment) at the lower left of the monitor screen as shown in the following Fig.:



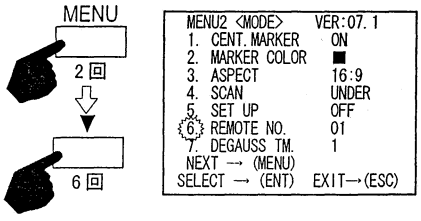
b) Setting the remote control mode

Input the monitor ID number by means of MONITOR SELECT key of the remote controller, and set the monitor to be operated into the remote control mode.
"REMO01" appears at the upper left of the screen at this time.
As shown in the following Fig., press ID number sequentially from high order to low order.

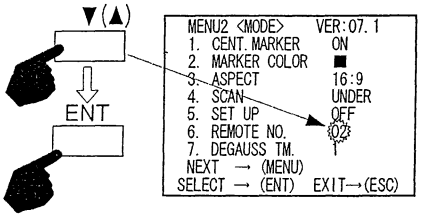


c) Changing the ID

- Press MENU key twice to indicate MENU 2, and choose "Item 6" by means of "▼" key.



- Press ENT key, change the number by means of ▲▼ keys, and finalize by means of ENT key.



- Thus the setting of ID number is finished.
Then, set up DEGAUSS timer in the following Item.

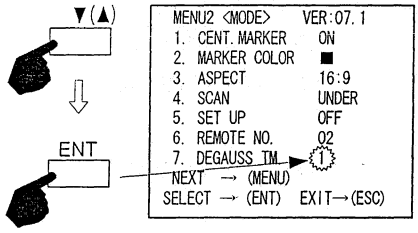
② Setting up the DEGAUSS (demagnetization) timer

Divide the monitor into 10 blocks and set the DEGAUSE time at which degaussing is automatically performed at the time of power on within a range of 0 to 9.

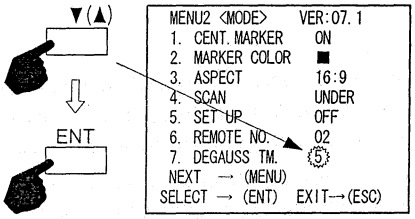
It is provided to delay automatic degaussing that works automatically at the time of power on at a unit of 0.5 second, thereby minimizing rush current that occurs when turning on power supply to the rack all at once.

For details, refer to 4-11 (4) (8).

a) Select "Item 7" on MENU 2 by means of ▼ key, and press ENT key.



b) Set monitor to 0 to 9 groups by means of ▼▲ keys, and finalize with ENT key.



c) Exit MENU screen with ESC key, press END key to cancel the remote control mode. Thus setting has been completed.

(3) Name and function of operating key board

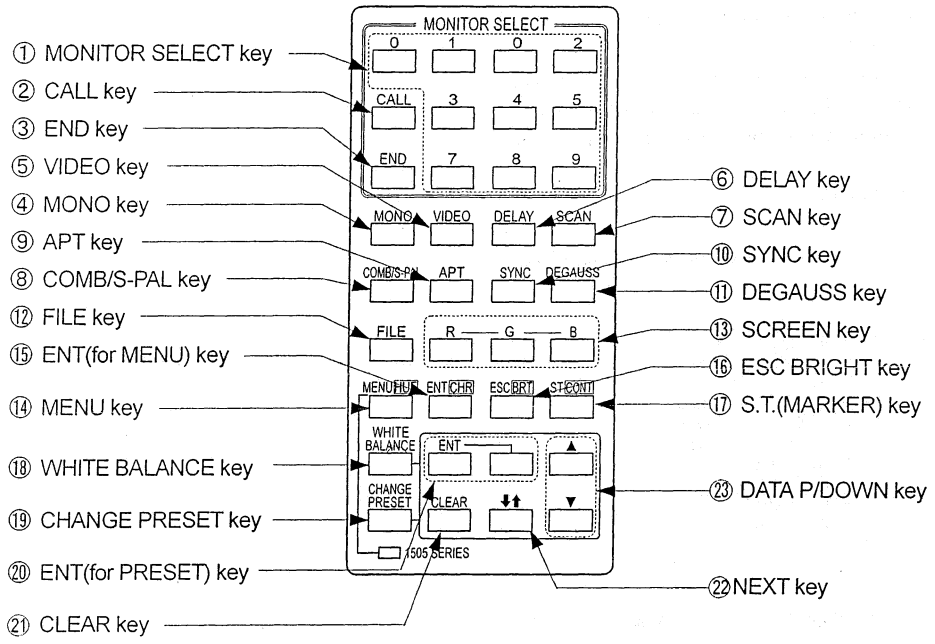


Fig. 4-7 **RCT-20A** operating key board

Each phrase in the explanation denotes the following meaning.
- SDTV: 525i, 625i
- HDTV: 1035i, 1080i, 720p
- SD-SDI: SDI of SDTV(525i, 625i)
- HD-SDI: SDI of HDTV(1035i, 1080i, 720p)

① MONITOR SELECT key

- Select a monitor with which you want to operate remote control operation. Input monitor ID number in 2-digit figure.

② CALL key

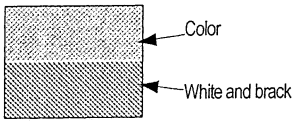
- Used to indicate REMOTE NUMBER set on the monitor screen. ID number can be checked.

③ END key

- Used to end remote control operation.

④ MONO key

- To change color signal into monochrome status, press it.
- When MONO key is pressed for 2 to 3 seconds continuously, a split display appears (the upper half of the screen becomes color display and the lower half becomes monochrome display).

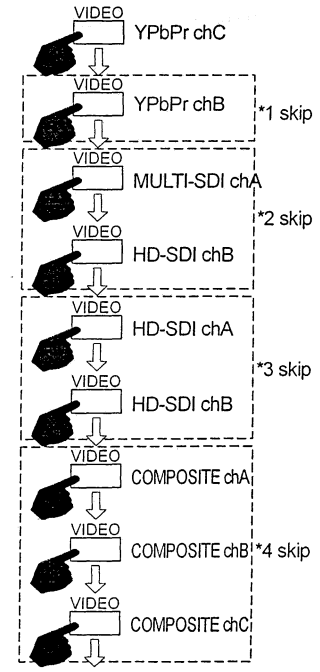


⑤ VIDEO key

- Used to choose between INPUT mode (image input signal) and TEST mode (TEST signal).
- When it is pressed for 2 to 3 seconds continuously in the INPUT mode, TEST mode is selected.
  To cancel TEST mode, press it for 2 to 3 seconds continuously again.

[INPUT mode]

- Setting of INT/EXT of SYNC is memorized at each channel (chA, chB, chC, YPbPr/RGB-A, YPbPr/RGB-B) of analog input and changes to setting side simultaneously with channel switching automatically.
- Setting of 4:3/16:9 of ASPECT is memorized at each channel (chA,chB,chC,YPbPr/RGB chA,YPbPr/RGB chB,SDI chA,SDI chB) regardless of format and changes to setting side simultaneously with channel switching automatically.

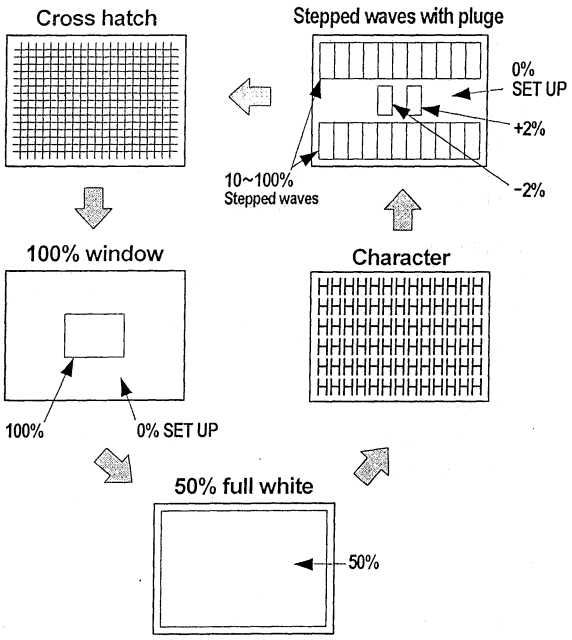


Skips function that does not correspond to mounted optional module.
Check option module.

*1 Dual component module
*2 MULTI-SDI module
*3 SD-SDI module
*4 Decoder module

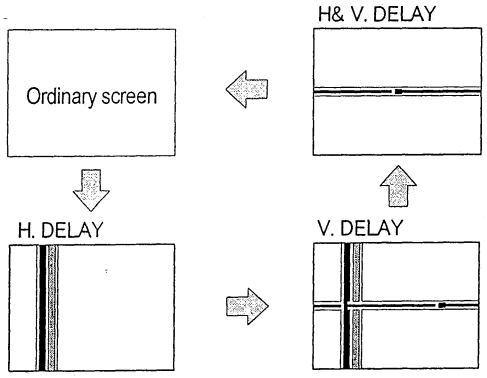
[TEST mode]

- Test signals of the following format are internally provided:
  Change the format at "Item 5" on MENU 1.
  525i / 59.94
  625i / 50
  1035i / 60
  1080i / 60
  720p / 60 (Type-1only)
- Setting of 4:3/16:9 of ASPECT is memorized at each format and changes to setting side simultaneously with channel switching automatically.
- Pressing the switch outputs the following 5 kinds of signals one by one.



⑥ DELAY key

- Used to monitor the status of horizontal/vertical blanking period.
  It changes in the following order each time the key is pressed:



⑦ SCAN key

- Used to switch between 4:3 and 16:9, and between normal scan and under scan. It changes in the following order each time the key is pressed:

4:3 NOR → 4:3 UNDER → 16:9 NOR → 16:9 UNDER

⑧ COMB/S-PAL key (Available only when DE-801 [Option] is mounted)

- To operate 3-line COM filter circuit, turn it on, and to operate trap circuit, turn it off.
- It is operative only when analog/digital (D2) NTSC composite signal is input.

  * Function of S-PAL (SIMPLE PAL) is not provided.

⑨ APT key

- To correct aperture, turn it on.
- For SDTV format signal of YPbPr/RGB input and D1 format signal of SD-SDI, the aperture function does not operate.

⑩ SYNC key

- To perform external sync at the time of analog signal input, set it to EXT side. However, it does not operate at the time of digital input signal.

⑪ DEGAUSS key

- To degauss CRT, turn it on.
  When degaussing sequentially, take a time interval of 2 to 3 minutes.
- Degaussing is automatically carried out when power is turned on.

⑫ FILE key

- Used to change FILE 1 to FILE 3.
  Pressing the key once again returns to reference.
- At the time of factory shipment, the following color-temperature data have been set to FILE 1 to FILE 3 beforehand.

  [Color temperature of each file at the time of factory shipment]
  ·Reference: 6500K
  ·FILE 1: 6500K
  ·FILE 2: 9300K
  ·FILE 3: 6500K

⑬ SCREEN key

- To display each screen color (red, green and blue) independently, turn it on.
  When all switches are turned on, screen display becomes color display and all LED's are off.

⑭ MENU key

- Used to call menus.
  Select menu with ▲▼ keys.
- Refer to "4-11 Function of MENU."

⑮ ENT key (for PRESET screen)

- Used to operate menu.
- Refer to "4-11 Function of MENU."

⑯ ESC key

- Used to return from menu operation to ordinary screen.
- Refer to "4-11 Function of MENU."

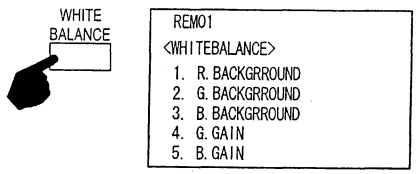
⑰ S.T key

- To indicate various markers, turn on the switch.
- Each time switch is pressed, the marker changes in the order shown in Fig. 4-9. Marker indication will be off, after all markers are indicated or when the switch is pressed for 2 to 3 seconds continuously.
- This switch also serves as 4:3 shadow.
  4:3 shadows are ⑫, ⑬, and ⑭ shown in Fig. 4-9.

⑱ WHITE BALANCE key

- To change white balance-related preset data of Items 1 to 5 displayed on the screen, press this key.

- Item can be moved by means of WHITE BALANCE key and ↓ ↑ key.
- For how to enter/change data, refer to 4-8.
- For how to adjust white balance, refer to 4-10 (3).

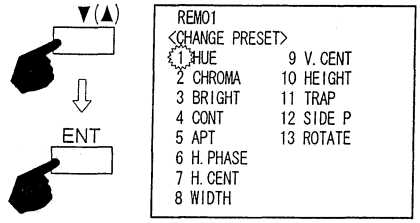


Explanation of each item on <white balance> menu

1. R.BACKGROUND
   Used to adjust the white balance (red component) of low light portion.
2. BACKGROUND
   Used to adjust the white balance (green component) of low light portion.
3. B.BACKGROUND
   Used to adjust the white balance (blue component) of low light portion.
4. G.GAIN
   Used to adjust the white balance (green component) of highlight portion.
5. B.GAIN
   Used to adjust the white balance (blue component) of highlight portion.

⑲ CHANGE PRESET key

- To change preset data (13 items), press this key.
- Item can be moved by means of CHANGE PRESET key and ↓ ↑ keys.
- For how to enter/change data, refer to 4-8.



- Each preset data has the following individual data:

Table 5-3-1 List of Each PRESET DATA

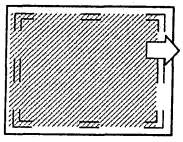
PRESET	FILE	FORMAT	SCAN	Number of data
HUE	●	×	×	4
CHROMA	●	×	×	4
BRIGHT	●	×	×	4
CONT	●	×	×	4
G,B.GAIN	●	×	×	4
R,G,B BKG	●	×	×	4
HEIGHT	×	●	●	14 (17)
WIDTH	×	●	●	14 (17)
H.CENT	×	●	×	4 (5)
V.CENT	×	●	×	4 (5)
H.PHASE	×	●	×	4 (5)
TRAPEZOID				
SIDE PIN	×	●	×	4 (5)
ROTATION	×	×	×	1
APT	×	×	×	1

FILE: REFERENCE, FILE 1, FILE 2, FILE 3
FORMAT: 525i, 625i, 1035i, 1080i, 720p(Type-1)
SCAN: 4 : 3normal, 4 : 3under, 16 : 9normal, 16 : 9under
( ): Number of data for Type-1

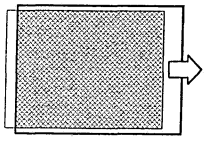
* Do not change SCAN and channel while changing each preset data.

Explanation of CHANGE PRESET item

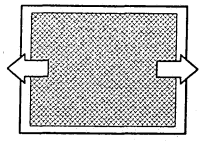
1. HUE
   - Used to adjust hue data.
   - Circuit operates only when analog/digital (D2) NTSC composite signal input equipped with NTSC decoder module DE-801 is selected.
   - For how to adjust, refer to 4-10 (4).
2. CHROMA
   - Used to adjust chroma data.
   - For how to adjust, refer to 4-10 (4).
3. BRIGHT
   - Used to adjust brightness data.
   - It does not operate in DELAY mode.
   - For how to adjust, refer to 4-10 (1).
4. CONT
   - Used to adjust contrast data.
   - For how to adjust, refer to 4-10 (2).
5. APT
   - To correct aperture, turn it on.
   - For SDTV format signal of YPbPr/RGB input and D1 format signal of SD-SDI, the aperture function does not operate.
6. H.PHASE
   - Used to adjust the horizontal phase of image.
   - Indicate 100% marker and adjust so that image may come within 100% of the frame.



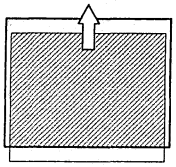
7. H.CENT
   - Used to adjust the horizontal position of the available picture area.



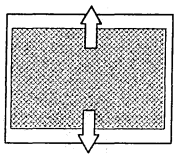
8. WIDTH
   - Used to adjust the width of available screen area for each scanning size and aspect.



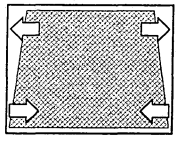
9. V.CENT
   - Used to adjust the vertical position of the available picture area.



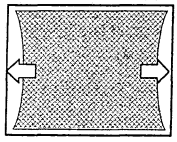
10. HEIGHT
    - Used to adjust the height of available screen area for each scanning size and aspect.



11. TRAPE
    - Used to adjust TRAPEZOIDE (trapezoidal distortion) on either side.

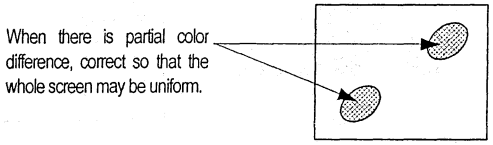


12. SIDE.PIN
    - Used to adjust SIDE PIN (pin-cushion distortion) on either side.



13. ROTATE

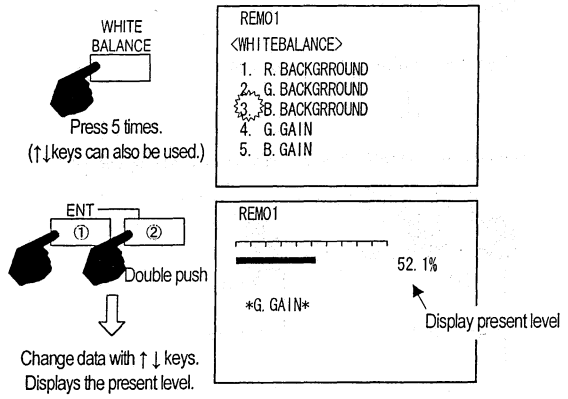
- Used to correct the deviation of PURITY that occurs due to the influence of earth magnetism when the direction of monitor is changed. Make the whole screen uniformly monochrome by means of SCREEN key.
- When using the monitor in a relay car or similar situation where the direction of the monitor always changes, set elbit connector (EL 561) of DEF board to OFF position to make the rotation circuit inoperative. It has been set to "ON" at the time of factory shipment.



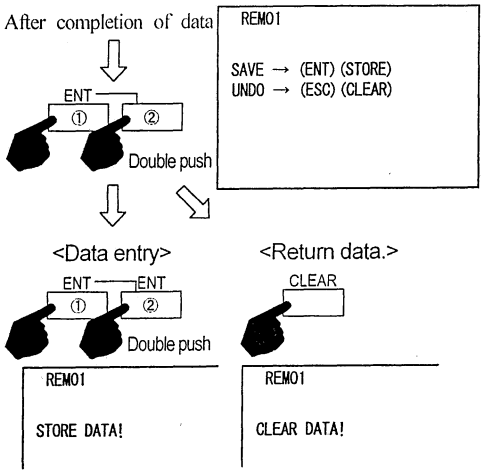
⑳ **ENT key** (for PRESET screen)

- To display the preset screen by means of CHANGE PRESET key and WHITE BALANCE key and select an item to be changed, press this switch.
- As ENT key is a double-push key to prevent an operation mistake, press it in the order of ①→②.
- For details of how to use preset screen refer to 4-8.

[How to select a preset item]



[How to enter preset data]



㉑ **CLEAR key** (for PRESETscreen)

- To display the preset screen by means of CHANGE PRESET key and WHITE BALANCE key and select an item to be changed or clear data, press this switch.
- When the key is pressed while preset data is being changed, it is possible to clear the data being changed and return it to the former data.

㉒ **↓ ↑ key** (for PRESETscreen)

- Display the preset screen by means of CHANGE PRESET key and WHITE BALANCE key, and move the blinking number with ↓↑ keys.
- It is possible to move the blinking number by pressing CHANGE PRESET and WHITE BALANCE keys, as well.

㉓ **▲▼ key**

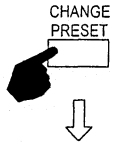
- To change the contents on the right side of MENU screen or the data of preset screen, press these keys.

4-8. Entry and Change of Data

(1) Changing PRESET DATA

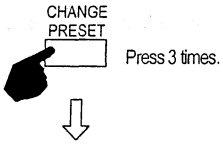
[Example] Change and entry of BRIGHTNESS, CONTRAST, R.BACKGROUND

① Display PRESET Screen



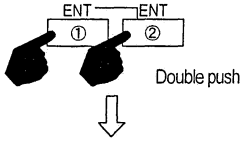

```
REMO1
<CHANGE PRESET>
 1 HUE          9 V. CENT
 2 CHROMA      10 HEIGHT
 3 BRIGHT      11 TRAPE
 4 APT         12 SIDE PIN
 5 CONT        13 ROTATE
 6 H. PHASE
 7 H. CENT
 8 WIDTH
```

② Select Menu-Item No.



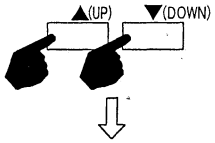

```
REMO1
<CHANGE PRESET>
 1 HUE          9 V. CENT
 2 CHROMA      10 HEIGHT
 3 BRIGHT      11 TRAPE
 4 APT         12 SIDE P
 5 CONT        13 ROTATE
 6 H. PHASE
 7 H. CENT
 8 WIDTH
```

③ Select Menu Item 3.



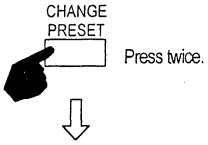

```
REMO1

*BRIGHT*        52. 1%
                Displays present level.
```

④ Change Data



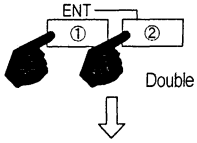

```
REMO1

*BRIGHT*        65. 0%
```

⑤ Display RESET screen



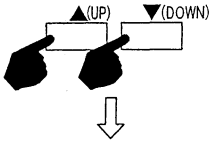

```
REMO1
<CHANGE PRESET>
 1 HUE          9 V. CENT
 2 CHROMA      10 HEIGHT
 3 BRIGHT      11 TRAPE
 4 CONT        12 SIDE P
 5 APT         13 ROTATE
 6 H. PHASE
 7 H. CENT
 8 WIDTH
```

⑥ Select Menu Item 4.



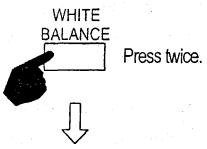

```
REMO1

*CONT*          51. 0%
                Display present level
```

⑦ Change Data



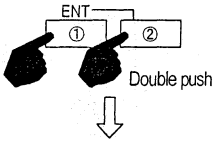

```
REMO1

*CONT*          63. 4%
```

⑧ Display PRESET Screen



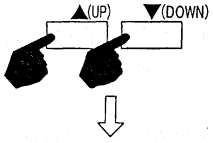

```
REMO1
<WHITE BALANCE>
 1 R. BACKGROUND
 2 G. BACKGROUND
 3 B. BACKGROUND
 4 G. GAIN
 5 B. GAIN
```

⑨ Select Menu Item 1



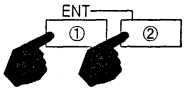

```
REMO1

*BRIGHT*        52. 1%
                Displays present level
```

⑩ Change Data




```
REMO1

*R. BLK*        62. 4%
```

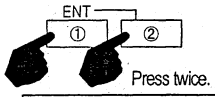
⑪ Data Entry




```
REMO1

SAVE → (ENT) (STORE)
UNDO → (ESC) (CLEAR)
```

Displays reconfirmation message here.

<When doing data entry> <When returning data>




```
REMO1

STORE DATA!
```

Completion of entry

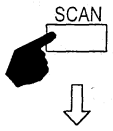
```
REMO1

CLEAR DATA!
```

Data clearing

(2) Changing the screen size

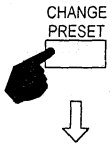
[Example] Change and entry of Normal/Under Scan of 16:9

① Set NORMALSCAN (16:9)



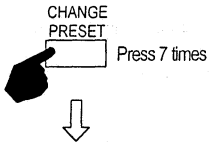

```
REMO1

NORMALSCAN(16:9)
```

② Display RESET Screen



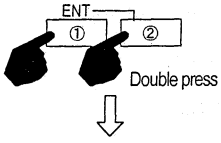

```
REMO1
<CHANGE PRESET>
 1 HUE          9 V.CENT
 2 CHROMA      10 HEIGHT
 3 BRIGHT      11 TRAPE
 4 APT         12 SIDE P
 5 CONT        13 ROTATE
 6 H.PHASE
 7 H.CENT
 8 WIDTH
```

③ Select Menu Item



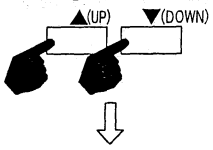

```
REMO1
<CHANGE PRESET>
 1 HUE          9 V.CENT
 2 CHROMA      10 HEIGHT
 3 BRIGHT      11 TRAPE
 4 APT         12 SIDE P
 5 CONT        13 ROTATE
 6 H.PHASE
 7 H.CENT
 8 WIDTH
```

④ Select WIDTH



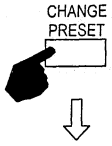

```
REMO1

*WIDTH*          51.1%
                  ↑
          Display currentry level
```

⑤ Change Data



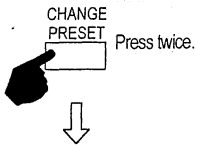

```
REMO1

*WIDTH*          55.0%
```

⑥ Display RESET Screen



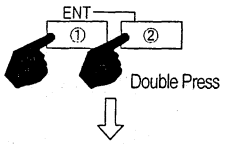

```
REMO1
<CHANGE PRESET>
 1 HUE          9 V.CENT
 2 CHROMA      10 HEIGHT
 3 BRIGHT      11 TRAPE
 4 CONT        12 SIDE P
 5 APT         13 ROTATE
 6 H.PHASE
 7 H.CENT
 8 WIDTH
```

⑦ Select Menu Item



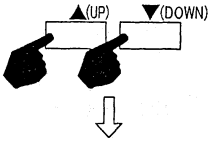

```
REMO1
<CHANGE PRESET>
 1 HUE          9 V.CENT
 2 CHROMA      10 HEIGHT
 3 BRIGHT      11 TRAPE
 4 CONT        12 SIDE P
 5 APT         13 ROTATE
 6 H.PHASE
 7 H.CENT
 8 WIDTH
```

⑧ Select HEIGHT



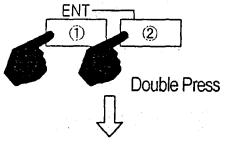

```
REMO1

*HEIGHT*         51.1%
                  ↑
          Display currentry level
```

⑨ Change Data



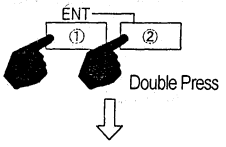

```
REMO1

*HEIGHT*         55.0%
```

⑩ Data Entry 1



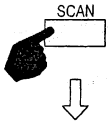

```
REMO1

SAVE → (ENT) (STORE)
UNDO → (ESC) (CLEAR)
```

⑪ Data Entry 2




```
REMO1

SAVE → (ENT) (STORE)
UNDO → (ESC) (CLEAR)
```

⑫ Set UNDER SCAN (16:9)




```
REMO1

NORMALSCAN(16:9)
```

⑬ Then, set WIDTH and HEIGHT in the same procedure as NORMAL SCAN settings ② to ⑩.

Caution

When changing data having preset data at each format and size (see Page 17), do not press VIDEO key or SCAN key while changing data. Otherwise, data that have been changed up to that time are cleared.

4.9 Kinds of Markers

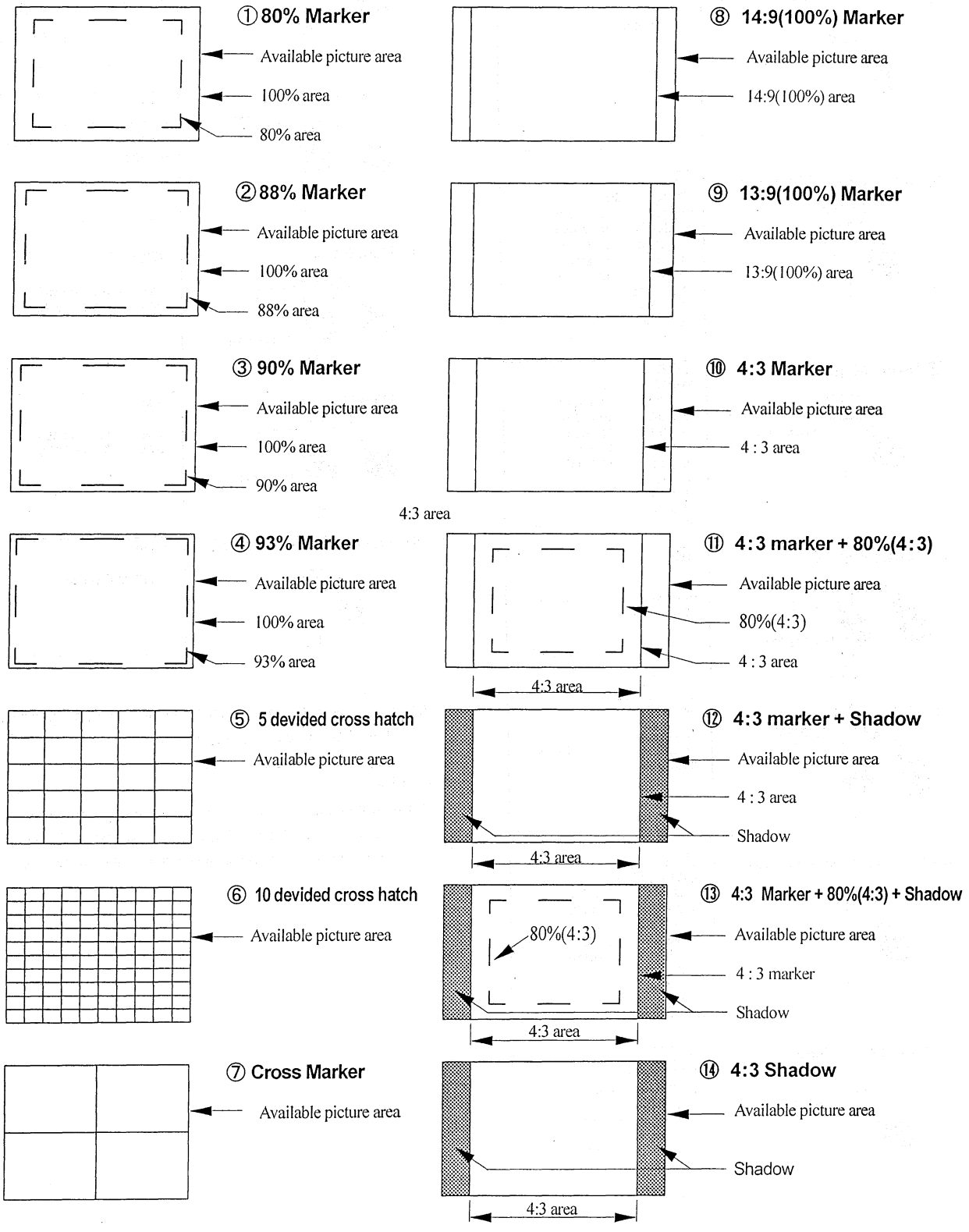


Fig. 4-9 Kind of marker

4.10 How to Adjust

<Introduction>
- The following procedures can realize more accurate adjustment, when the environment of the monitor is darkened as much as possible.
- For model R, adjust in accordance with "How to Change Preset Data" mentioned in "4-4", and for model CS, adjust in accordance with "How to Change Preset Data" mentioned in "4-8".

(1) Brightness adjustment

a) **About the brightness**

Brightness control is performed to set a proper black level.
Control it according to the brightness around the monitor so that the black level may not be excessively high or low.

b) **Control Procedures**

① **Input Signal**

Select a gray scale with pluge of the built-in test signal.

② **Brightness Control**

Lower brightness gradually while observing pluge portion at the center of signal, and adjust to such a degree that the brightness of portion A (-2%) and portion B (0%) can be visually discriminated.
Check that portion C (+2%) glares slightly at this time.
If it cannot be discriminated, the black level is excessively lowered.
Increase brightness until portion C glares slightly.

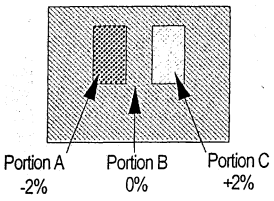


Fig. 4-9-1 Pluge portion

(2) Contrast adjustment

a) **About the contrast**

Contrast has been controlled to optimum luminance when the monitor is shipped from the factory.

b) **Notes**

If the monitor is used in an excessively brightened state (OVER LOAD LED lights up), the life of CRT will shorten.
Usually, use preset data at the value mentioned in Control Procedures.

c) **Control procedures**

① **Input Signal**

Input window signal (100%) or select window signal of the built-in test signal.

② Measure the brightness value of window portion with a luminance meter, and adjust CONTRAST to 120nit(cd/m²) or 35ft(s).

(3) White balance adjustment

a) **About the white balance**

Four kinds of data have been set to the following color temperature as data of white balance at the time of factory shipment:

• Refrence:	6500K
• FILE 1:	6500K
• FILE 2:	9300K
• FILE 3:	6500K

* The method of white balance adjustment using an analyzer and the method of white balance adjustment using **ASP-80** [option] for automatic adjustment are available.

* When memorizing the user's original color temperature data in a file, use FILE 3.

b) **Note**

As this monitor uses a beam feedback clamp method to detect and clamp beam current so as to stabilize the black level for a long period of time, it displays one line (portion A shown in Fig. 4-10-2) on the upper part of CRT.

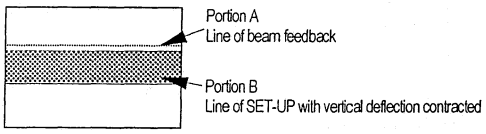


Fig. 4-10-2 Status of SET UP

When BACKGROUND is lowered to such a degree that portion B of Fig. 4-10-2 disappears, the line in portion A will also disappear, making it impossible to detect beam current. Consequently, only the image of such lowered color will disappear.
Be careful of such phenomenon sufficiently, when adjusting BACKGROUND.

c) **Adjustment procedure -1** —Visual adjustment—

① **Input Signal**

Input a color bar signal or select a gray scale with pruge of the built-in test signal.

② **Setting a file**

Select a file for which white balance is changed.
Control brightness and contrast properly before white balance adjustment.

③ **Setting before BACKGROUND adjustment**

For color bar signal, turn on MONO switch on the front panel to display a monochrome screen. Turn on SET-UP switch in the drawer panel, and adjust as follows:

④ **Initial adjustment of low light level**

- With SCREEN switch (Red) alone turned on (only red screen), adjust R. BACKGROUND data to such a degree that the red line in portion B in Fig. slightly glares.
- With SCREEN switch(Green) alone turned on (only green screen), adjust G. BACKGROUND data to such a degree that the green line in portion B in Fig. slightly glares.
- With SCREEN switch (Blue) alone turned on (only blue screen), adjust B. BACKGROUND data to such a degree that the blue line in portion B in Fig. slightly glares.
- When any one of R, G and B BACKGROUND cannot be adjusted until the above-mentioned adjustment, move SCREEN volume of the flyback transformer on HV OUT BOARD slightly and readjust BACKGROUND.

⑤ **Adjustment of highlight portion**

- Turn off SET-UP switch and each SCREEN switch.
- Observe the highlight portion of stepped wave and adjust so that it may become the intended color temperature by means of GAIN of G and B.

⑥ **Adjustment of low light portion**

- Observe the low light portion of tone wave and adjust so that it may become the intended color temperature by means of BACKGROUND of R, G and B.

⑦ As adjustments ⑤ and ⑥ interfere each other, repeat adjustments ⑤ and ⑥ until the intended color temperature can be attained from the low light portion to the highlight portion.

c) Adjustment procedure –2 —Adjustment using color analyzer —

When adjusting color When chromaticity point converges to the rated value for both low light and highlight, adjustment has been completed.:

CIE chromaticity point to color temperature (x, y)

Color temperature	x	y
6500k	0.313	0.329
9300k	0.283	0.297

① **Input Signal**

Input a window signal or select the window signal of the built- in test signal.

② **Setting a file**

Select a file for which white balance is changed.
Control brightness and contrast properly before white balance adjustment.

③ **Adjustment of R.BACKGROUND**

As white balance is adjusted on the basis of red, set R.BACKGROUND here.

- Turn on SET-UP switch in the drawer panel, and set to the status shown in Fig. 4-10-2.
- With SCREEN switch (Red) alone turned on (only red screen), adjust R. BACKGROUND data to such a degree that the red line in portion B in Fig. slightly glares.
- Return the status of SET-UP and each SCREEN switch to the former status, and do not move R.BACKGROUND any more.

④ **Setting of Contrast**

Set CONTRAST to manual status, apply the probe of color analy- zer to the center of window signal indicated on the screen, and set the brightness value by manual operation beforehand so that brightness value may be set to about 5 nit(cd/m²) or about 1.5 fL.
As the brightness value set here changes according to the adjustment of white balance, check it each time low light portion is adjusted, and set it again if it deviates. Permissible value of deviation is about ±2nit(±0.5fL).

⑤ **Setting of chromaticity point at the time of highlight (x, y)**

Set CONTRAST to the preset status and set chromaticity point (x, y) at the time of highlight with GAIN of G and B.

-1. Adjust so that chromaticity point x may become the rated value with B.GAIN.

-2. Adjust so that chromaticity point y may become the rated value with G.GAIN.

-3. Adjust chromaticity point (x, y) repeatedly until it converges to the rated value.

⑥ Setting of chromaticity point at the time of low light (x, y)

Set CONTRAST to the manual status and set chromaticity point (x, y) at the time of low light with GAIN of G and B.

-1. Adjust so that chromaticity point x may become the rated value with B.BACKGROUND.

-2. Adjust so that chromaticity point y may become the rated value with G.BACKGROUND.

-3. Adjust chromaticity point (x, y) repeatedly until it converges to the rated value.
When this low light portion is adjusted, chromaticity point at the time of highlight will also shift. So, when it comes near to the rated value at the initial adjustment, adjust the highlight portion of Step ⑤ again.

⑦ When chromaticity point converges to the rated value for both low light and highlight, adjustment has been completed.

(4) Color balance adjustment

a) About the color balance

For component signal (YPbPr/RGB), color balance is adjusted only by CHOROMA. However, when NTSC decoder module **[DE-801]** capable of inputting NTSC composite signal is mounted, adjust color balance by the adjustment of HUE and CHROMA.

b) Adjustment procedure - 1 —In case of NTSC composite signal—

① **Input Signal**

SMPTE color bar signal or
NTSC75% color bar signal
similar to it is input.

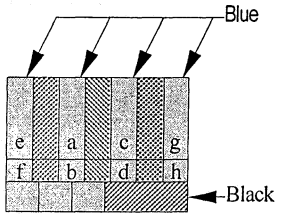


Fig. 4-10-3 NTSC 75% color bar signal

② **Initialization**

Fill the screen with blue signal alone by means of SCREEN switch.

* When the screen is bright, it is difficult to discriminate luminance difference. Therefore, darken the circumference as much as possible and lower the brightness to such a degree that blue signal can be seen a little. Consequently, more accurate setting can be accomplished.

③ **Adjustment of HUE**

Adjust all portions of "a" to "d" shown in Fig. 4-10-3 to the same brightness.
When all portions are not adjusted to the same brightness, adjust to the optimum state and then perform the following CHROMA adjustment.

④ **Adjustment of CHROMA**

Adjust all portions of "e" to "h" shown in Fig. 4-10 to the same brightness.
When all portions are not adjusted to the same brightness at this time, adjust to the optimum state and then perform Step ③ Adjustment of HUE.

⑤ Repeat adjustments ③ and ④ so that all portions "a" to "h" have the same brightness finally.

c) **Adjustment procedure - 2** —In case of component signal—

① **Input Signal**

Input 100% color bar signal into YPbPr input.

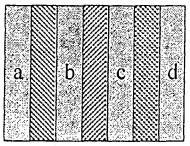


Fig. 4-10-4 100% color bar signal

② **Initialization**

Fill the screen with blue signal alone by means of SCREEN switch.

* When the screen is bright, it is difficult to discriminate luminance difference. Therefore, darken the circumference as much as possible and lower the brightness to such a degree that blue signal can be seen a little. Consequently, more accurate setting can be accomplished.

③ **Adjustment of CHROMA**

Adjust all portions of "a" to "d" shown in Fig. 4-10-4 to the same brightness.

When input signal is 75% color bar signal (portion "a": 100%, portions "b" to "d": 75%), adjust all portions "b" to "d" to the same brightness.

(5) Focus adjustment

a) **About the focus**

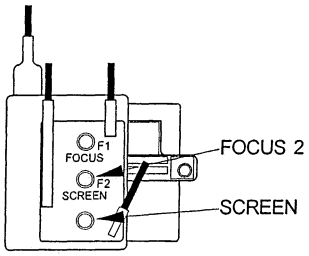


Fig. 4-10-5 Flyback transformer

For **HTM-1505 R/CS**, adjust the focus with FOCUS 2 (static focus) alone shown in Fig. 4-10-5.

b) **Note**

As the flyback transformer generates high voltage of 25kV to supply to CRT, never touch it with the hand. (Except when it is adjusted by a serviceman.)

When adjusting, be careful not to touch any other part than the controller.

c) **Adjustment procedure**

① **Initialization**

Turn off power supply and remove the top cover of the monitor.

Turn on power supply again and perform heat run for about 20 minute.

② **Input Signal**

Select a fine signal that indicates characters on the whole screen, or a character signal of the built-in test signal.

③ **Adjustment of Focus**

Adjust so that the focus may be optimal by means of FOCUS 2 shown in Fig. 4-10-5.

(6) Rotation adjustment

a) **About the rotation**

Rotation corrects the change of purity of CRT that is produced by the influence of earth magnetism, when the direction of monitor is changed.

When the installation place is changed, perform this adjustment.

b) **Adjustment procedure**

① **Initialization**

Press DEGAUSS switch to demagnetize CRT.

② **Input Signal**

Select a white signal of about 50% to whiten the whole screen uniformly or a 50% full flat of the built-in test signal

③ **Adjustment of ROTATION**

-1. Fill the screen with red alone by pressing SCREEN switch (Red).

-2. Adjust ROTATION so that the uniformity of white of the screen may be optimal.

-3. Also check for the purity of green and blue.

(7) Screen Center adjustment

a) About the screen center

To adjust the screen center, use the following 3 kinds of controllers: In addition, set data for each signal format.

- **H.PHASE**
  Adjust the position of image so that the phase of 100% marker may agree with the image.
- **H.CENT**
  Adjust the position of horizontal deflection to the frame of escutcheon (whole surface frame of CRT) so that the marker may come to the center of the whole surface frame.
- **V.CENT**
  Adjust the position of vertical deflection to the frame of escutcheon (whole surface frame of CRT) so that the marker may come to the center of the whole surface frame.

b) Note

As H. PHASE and V.CENT are saved as data for each signal format, do not perform the following switching operation during setting.

If switching operation is performed, different data than the format that has been set up to now is called, and thus data that is used during operation will be cleared.

- Channel switching
- Change of input signal format
- SCAN switching
- ASPECT switching

c) Adjustment procedure

The following adjustment is an adjustment procedure for one signal format. However, it is possible to set other signal formats in accordance with the same method as well, respectively.

① Input Signal

- Check that the format of MENU 1 is correctly set to the signal format to be changed.
  For format setting, refer to 4 -11 (3).
- Input a signal (mono-scope signal etc.) of which video component can indicate the whole available picture area.

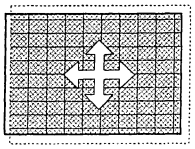
② Adjustment of H.CENT/V.CENT

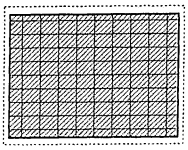
-1. Set the size to normal size with SCAN switch.

-2. Turn on MARKER switch and indicate 10-divided cross-hatching.

-3. Adjust horizontal direction by H.CENT and vertical direction by V.CENT so that the upper and lower sides and the right and left sides may be equal.

-4. As the following adjustment ③ changes to the under-scan size with SCAN switch, press CHANGE PRESET switch beforehand to save data.


<NG>

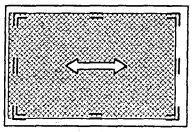

<OK>

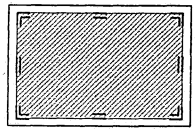
③ Adjustment of H.PHASE

-1. Set to the under-scan size with SCAN switch.

-2. Display marker of 100% with MARKER switch.

-3. Adjust H.PHASE so that the image may agree with 100% of marker.


<NG>


<OK>

④ When changing the setting of ② and ③ in another format, press CHANGE PRESET switch at the end of other data change to save data and then switch the signal to other format.

(8) Screen distortion adjustment

a) About the screen distortion

- SIDE PIN and TRAPEZOID distortion are available for adjustment of screen distortion.
  Pressing EXPAND switch changes the adjustment item alter- nately so that each adjustment can be performed.
- Set these 2 kinds of preset data for each signal format in the same manner as adjustment item (7).

b) Note

As SIDE.PIN and TRAPEZOID are saved as data for each signal format, do not perform the following switching operation during setting.
If switching operation is performed, different data than the format that has been set up to now is called, and thus data that is used during operation will be cleared.

- Channel switching
- Change of input signal format
- SCAN switching
- ASPECT switching

c) Adjustment procedure

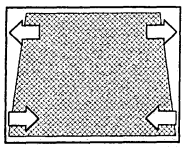
① Input Signal

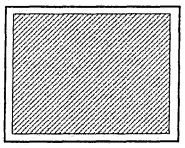
Check that the format of MENU 1 is correctly set to the signal format to be changed.
For format setting, refer to 4 -11 (3).

- Select cross hatching signal of the input signal, or select cross hatching of the built-in test signal.

② Adjustment of Trapezoidal Distortion

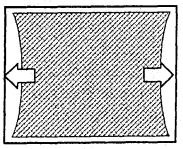
When EXPAND switch is turned on, TRAPEZOID distortion adjustment mode is selected. Adjust it as follows:

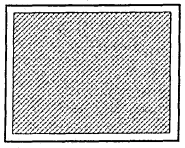

<NG>


<OK>

③ Side-pin Adjustment

Then, when EXPAND switch is turned on, SIDE PIN adjustment mode is selected. Adjust it as follows:


<NG>


<OK>

④ When changing the setting of ② and ③ in another format, press CHANGE PRESET switch at the end of other data change to save data and then switch the signal to other format.

(9) Screen size adjust Image Field

a) **About the Screen size**

Set the image field by HEIGHT and WIDTH.
These 2 data have the following 4 kinds (HDTV: 3 kinds) of size settings to the signal format, and there are individual data of which number is equivalent to the number of formats that can be input.

- SCAN switch: NORMAL
  UNDER SCAN
- ASPECT switch: 4 : 3 SCAN
  16 : 9 SCAN

b) Note

As HEIGHT and WIDTH are saved as data for each signal format, do not perform the following switching operation during setting.
If switching operation is performed, different data than the format that has been set up to now is called, and thus data that is used during operation will be cleared.

- Channel switching
- Change of input signal format
- SCAN switching
- ASPECT switching

c) Adjustment procedure - 1 —HDTV/SDTV 4:3 UNDER SCAN—

Adjust HEIGHT, WIDTH of UNDER SCAN of HDTV, SDTV as follows:

① Input Signal

- Check that the format of MENU 1 is correctly set to the signal format to be changed.
  For format setting, refer to 4 -11 (3).
- Input a signal of which video component indicates the whole available picture area and has a circular pattern.

② Adjustment of HEIGHT and WIDTH

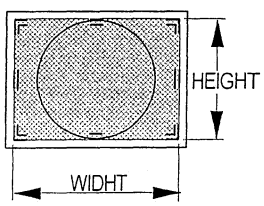
-1. Set to the aspect to be changed with ASPECT switch, and set to under scan with SCAN switch.

-2. Turn on MARKER switch and select 100% display marker.

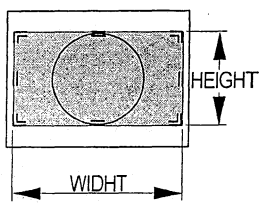
-3. Adjust HEIGHT and WIDTH so that size of 100% marker may become UNDER SCAN size mentioned on the following table:

Guide Value of UNDER SCAN size

ASPECT	FORMAT	HEIGHT	WIDTH
4 : 3	SD/HD	202 mm	270 mm
16 : 9	SD/HD	152 mm	270 mm



<Size of 4:3 (UNDER)>



<Size of 16:9 (UNDER)>

* Then, when adjusting another scanning size, be sure to press CHANGE PRESET switch to save data here beforehand.

d) **Adjustment procedure -2** —HDTV 16:9 NORMAL SCAN—

HDTV 16 : 9 NORMAL SCAN -

Adjust HEIGHT, WIDTH of HDTV normal scan as follows:

* In case of SDTV, refer to adjustment procedure 3.

① **Input Signal**

- Check that the format of MENU 1 is correctly set to the signal format to be changed. For format setting, refer to 4 -11 (3).
- Input a cross hatching signal or select the cross hatching signal of the built-in test signal.

② **Adjustment of HEIGHT and WIDTH**

-1. Set to 16:9 aspect with ASPECT switch, and set to normal scan with SCAN switch.

-2. Turn on MARKER switch and select 100% display marker.

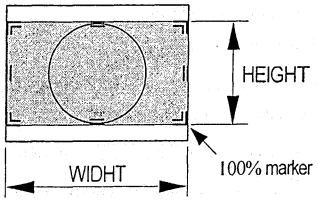
-3. Adjust WIDTH to such a degree that 100% marker touches escutcheon (whole surface frame), and 100% marker on both sides are hidden in escutcheon and disappear.

-4. Adjust HEIGHT so that the diameter of the circle is equal vertically and horizontally.

When adjusting with a signal having no circular pattern, adjust so that 100% marker may become the following size:

Guide value of HDTV NORMAL SCAN size

ASPECT	HEIGHT	WIDTH
16 : 9	162mm	Whole surface frame width + 2 markers 100% marker



<Size of 16 : 9 (NORMAL)>

* Then, when adjusting another scanning size, be sure to press CHANGE PRESET switch to save data here beforehand.

e) **Adjustment procedure-3** —SDTV 4 : 3 NORMAL SCAN—

Adjust HEIGHT and WIDTH in case of SDTV normal scan as follows:

① **Input Signal**

Check that the format of MENU 1 is correctly set to the signal format to be changed.

For format setting, refer to 4 -11 (3).

- Input a cross hatching signal or select the cross hatching signal of the built-in test signal.

② **Adjustment of HEIGHT and WIDTH**

- 1. Set to the aspect to be changed with ASPECT switch, and set to normal scan with SCAN switch.

- 2. Turn on MARKER switch and select 100% +93% marker.

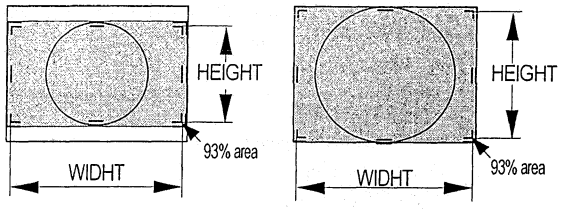
- 3.Adjust WIDTH so that 93% marker size may become the following size:

Guide value of SDTV NORMAL SCAN size

ASPECT	HD/SD	HEIGHT	WIDTH
4 : 3	SD	202 mm	270 mm
16 : 9	SD	152 mm	270 mm

※ This table shows the size of 93% marker.

-4. Adjust HEIGHT so that the diameter of the circle is equal vertically and horizontally. When adjusting with a signal having no circular pattern, adjust so that the size of 93% marker may become the following size:



<Size of SDTV 16:9(NORMAL)> <Size of SDTV 4:3(NORMAL)>

* Then, when adjusting another scanning size, be sure to press CHANGE PRESET switch to save data here beforehand.

e) **Adjustment procedure - 4** —HDTV 4 : 3 SCAN—

Adjust HDTV 4:3 scan.

① **Input Signal**

- Check that the format of MENU 1 is correctly set to the signal format to be changed.

For format setting, refer to 4 -11 (3).

- Input a cross hatching signal or select the cross hatching signal of the built-in test signal.

② **Adjustment of HEIGHT and WIDTH**

-1. Set to aspect to be changed with ASPECT switch.

SCAN switch does not function.

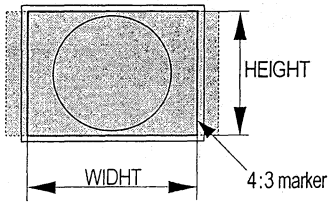
-2. Turn on MARKER switch and select 4:3% marker.

-3. For WIDTH, adjust so that 4:3% area marker may become the size shown on the following table:

Guide value of HDTV 4:3 SCAN size

ASPECT	HD/SD	HEIGHT	WIDTH
4 : 3	HD	202mm	270mm

※This table shows the size of 4:3 marker.



<Size of HDTV 4 : 3>

4-11 Menu Facility

(1) List of menus

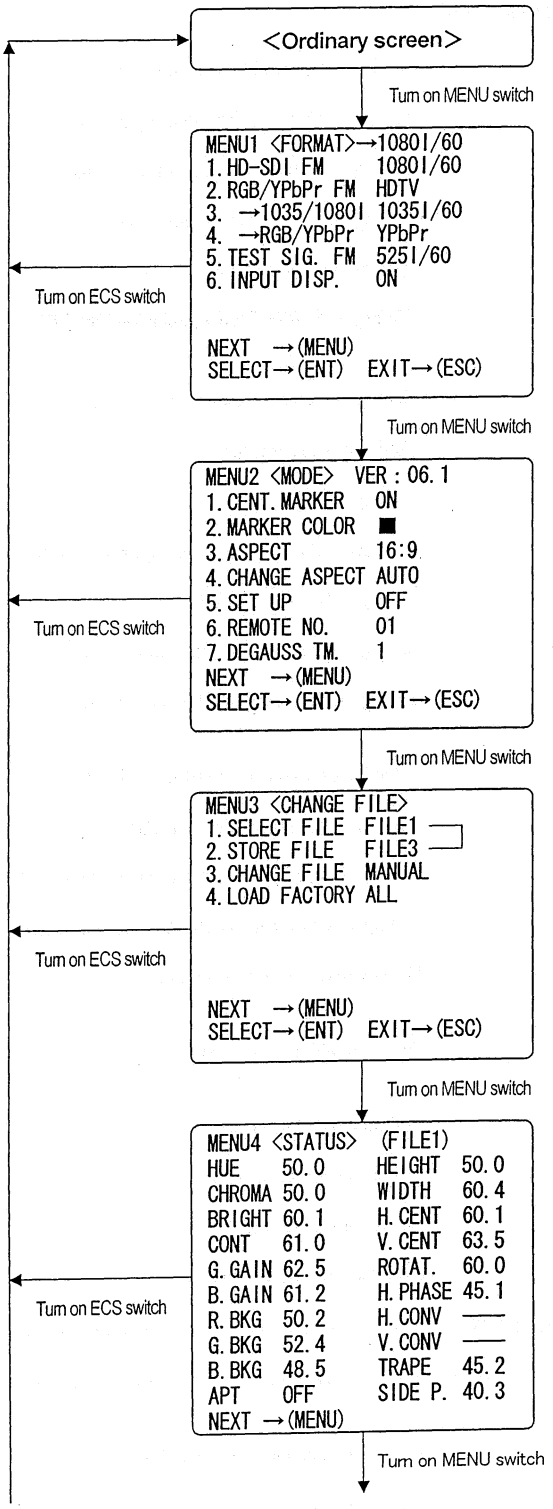
All functions can be operated from MENU screen.

Table 4-1 List of menus

MENU	MENU1 <FORMAT>	① HD-SDI FM	Setting of HD-SDI input signal format
		② RGB/YPbPr FM	Setting of YPbPr/ RGB input signal format
		③ →1035i/1080i	Setting of YPbPr/ RGB input line format
		④ →YPbPr	Setting of YPbPr/ RGB input signal type
		⑤ TEST SIG. FM	Setting of test signal format
		⑥ INPUT DISP.	Setting of channel format indication ON/OFF
	MENU2 <MODE>	① CENT. MARKER	Setting of center cross marker ON/OFF
		② MARKER COLOR	Setting of marker color
		③ ASPECT	Setting of 4:3/16:9
		④ SCAN	Setting of NORMAL SCAN/UNDER SCAN
		⑤ SET UP	Setting of SET UP ON/OFF
		⑥ REMOTE NO.	Setting of remote control ID number (0 to 99)
		⑦ DEGAUSS TM.	Setting of DEGAUSS-ON timer (0 to 9)
	MENU3 <CHANGE FILE>	① SELECT FILE	Selection of each FILE (REF/FILE1/2/3)
		② STORE FILE	Transfer of FILE (REF/FILE1/2/3)
		③ CHANGE FILE	Setting of AUTOMATIC/MANUAL change of file setting
		④ LOAD FILE	Setting to return data to default (factory default)
	MENU4 < STATUS >	① STATUS	Display of data status information
	MENU5 < LOCK >	① PASSWORD LOCK	Selection of data password
	MENU6 <SET UP(ASP-80)>	① ZERO CALIBRATION	Calibration of auto set-up
		② AWB (6500K)	6500k auto white balance
		③ AWB (9300K)	9300k auto white balance
		④ AWB (USER DATA)	User data auto white balance
		⑤ MEASUREMENT & MEMORY	Color temperature/measurement of luminance, and memory
		⑥ REAL TIME MEASUREMENT	Real color temperature / measurement of luminance
	MENU7 <AUDIO>	① LINE OUT CH	Setting of embedded analog audio output
		② LED ENABLE	Setting of audio level meter indication channel
		③ LED DIMMER	Setting of audio level meter LED brightness

(2) Flow of menu-driven operations

Each menu changes as follows by means of MENU switch:

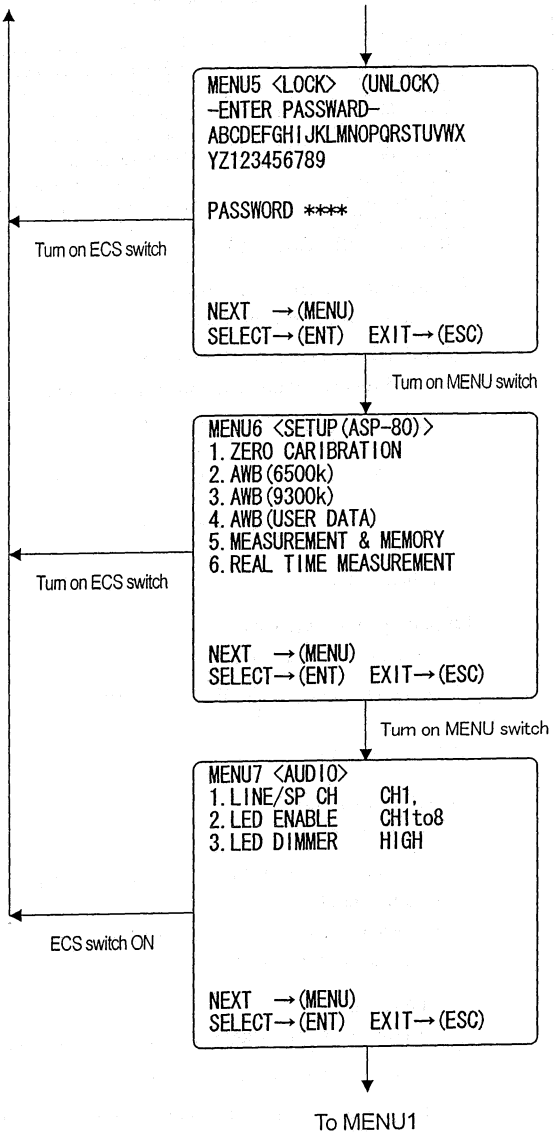


Set format of each input signal.

Set each mode.

Switch each file and transfer data from FILE to FILE.

Display each data in percent to check on screen.



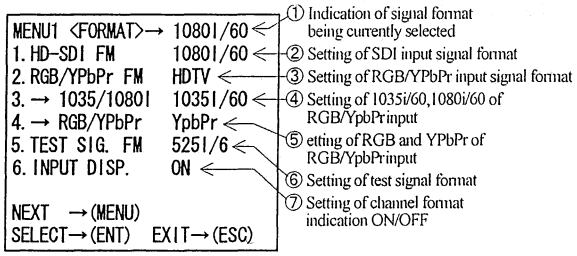
Set password for locking data.

Perform setting related to auto set-up probe.

Perform setting related to embedded audio.

(3) Functional description of MENU1

* Vertical deflection frequency "/60" in menu contains both 60Hz and 59.94 Hz.



① Indication of signal format being currently selected

- Indicates the currently selected format.

② Setting of SDI input signal format

- When using input module dedicated to HD-SDI (**DK-501** etc.), set input signal format to one of the following formats:
  1035i / 60, 1080i / 60 and 720p/60 (only Type-1).
  When HD-SDI input signal is selected, monitor is set up in a format that has been set here.
- When multi-SDI module is mounted, it is automatically recognized, eliminating the need for setting.

③ Setting of RGB/YPbPr input signal format

Set HDTV/SDTV signal format.

- When it is set to SDTV, 525i/60,625i/50 format is automatically detected to set up monitor.
- When it is set to HDTV, each format of 1080i (1035i), 720p/60 (only Type-1) is automatically detected to set up monitor.
  However, when signal format is 1035i/60 or 1080i/60, set individually in accordance with the following item ④:
- Default is HDTV.

④ Setting of signal line format of RGB/YPbPr input

- Set the number of image lines of 1035i or 1080i.
- Default is 1080i/60.

⑤ Setting of type of RGB/YPbPr input signal

- Set type of input signal to RGB or YPbPr.
- Default is YPbPr.

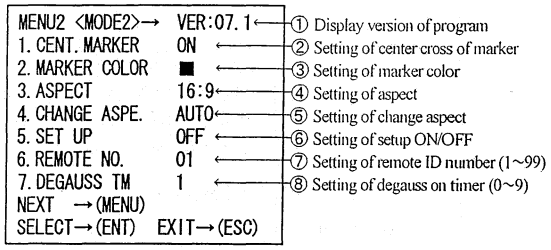
⑥ Setting of test signal format

- Set built-in test signal format of monitor.
- The following 5 kinds of formats are available:
  525i/60
  625i/50
  1035i/60
  1080i/60
  720p/60 ··· (only Type-1)
- Default is 1080i/60.

⑦ Setting of channel format indication ON/OFF

- Set whether to indicate input and signal format or not at the time of channel switching.

(4) Functional description of MENU2

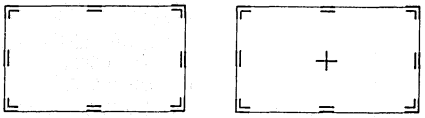


① Indication of program version

- Indicates stored program version

② Switching cross-center of marker

- Set ON/OFF of center cross indication of marker.



<OFF> <ON>

- Default is OFF.

③ Setting of marker color

- Set color of marker indication.
- Foreground color: White, Red, Green, Blue, Yellow, Magenta, Cyan
- Default is green.

④ Setting of aspect

- Set 4:3 or 16:9.
- Same function as ASPECT switch of front panel or wireless remote control.
  For details, refer to the operational description of ASPECT switch mentioned in 4-2 (1) or 4-7 (3).

⑤ Change Aspect

- Perform association for aspect setting at the time of input switching.

  AUTO: Indicates at aspect set for every channel.

  MANUAL: Indicates at setting of ASPECT switch of front panel or wireless remote control.

⑥ Setting of ON/OFF of set-up

- Set ON/OFF of set-up.
- When setting up, turn off image component and set to such a degree that the line of each BACKGROUND R, G, B is seen thinnest with screen height reduced to about 1/4.
  For details, refer to 4-10 (1).

⑦ Setting of remote ID number

- Set monitor ID number (01 to 99).
- Assign each monitor ID number (01 to 99) for remote operation using wireless remote controller (**RCT-20A**) or serial remote controller (**SRC-301**).

⑧ Setting of degauss-on timer

- Divide starting time of degauss (demagnetization) function that operates automatically at the time of power on into 10 groups (0 to 9), and set it.
- When monitors are set by dividing into groups, rush current that occurs when power to the system is turned on all at once will be minimized.

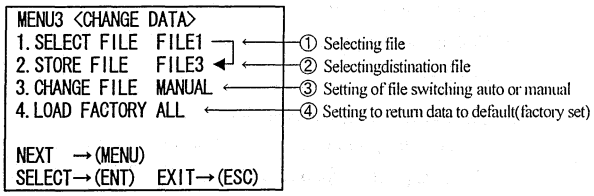
・Timer-operating time

When it is set to "0", degauss function will start about 4 seconds after power on. Each time "1" is added, the time delays about 0.5 second.

The following table shows the time required from power on to start of degaussing.

Set value	Time required to starting operation	Set value	Time required to starting operation
0	4.0 seconds	5	6.5 seconds
1	4.5 seconds	6	7.0 seconds
2	5.0 seconds	7	7.5 seconds
3	5.5 seconds	8	8.0 seconds
4	6.0 seconds	9	8.5 seconds

(5) Functional description of MENU 3



① Select File

・Set REFERENCE, FILE1, FILE2, and FILE3.

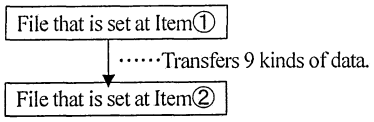
・The following 9 kinds of data are memorized in 4 files:

HUE	CONTRAST	R.BACKGROUND
CHROMA	G.GAIN	G.BACKGROUND
BRIGTHNESS	B.GAIN	B.BACKGROUND

・Operation is the same as that of FILE switch in the drawer panel.

② Select Destination File

・Transfers (overwrites) the data (9 kinds) of a file selected at Item ① to a file selected at Item ②.



・When "ALL" is selected, data of a file set at Item ① is transferred to all files (REF., FILE 1 to 3).

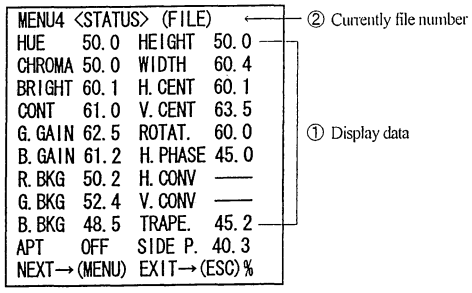
③ Setting of how to switch file setting

・Set auto or manual switching of file setting.

④ Setting to return data to default

・To return all data that have been set to the factory default value, perform this setting.

(6) Functional description of MENU 4



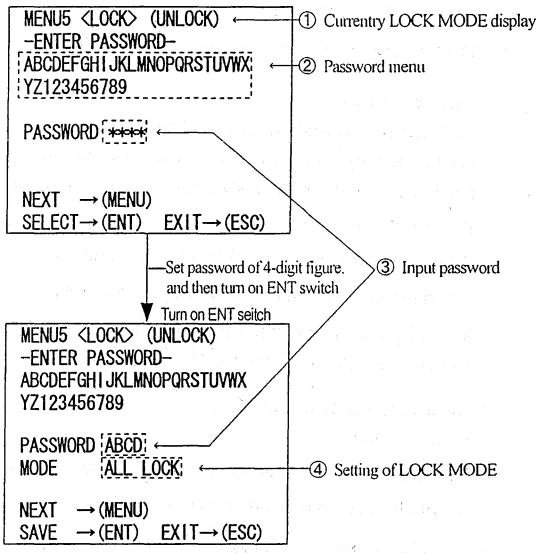
① Data display

・Displays various preset data within a range of 0 to 100% (resolution 0.1%).

② File number setting

・Displays file number that is currently selected.

(7) Functional description of MENU 5



① Display of lock mode setting

Displays lock mode that is currently set.

・UNLOCK: Unlocked status where all data can be changed

・ALL LOCK: Status where change of all preset data and switching of file are impossible.

・PRESET & FILE LOCK:
Status where preset and file data are locked, and switching to file is possible.

② Password menu

・Select characters from among these characters with rotary encoder, and set password.

③ Enter Password

・When setting lock mode to ALL LOCK or PRESET & FILELOCK, or when canceling lock mode (UNLOCK), select characters from menu of Item ② and enter password of 4-digit figure here.

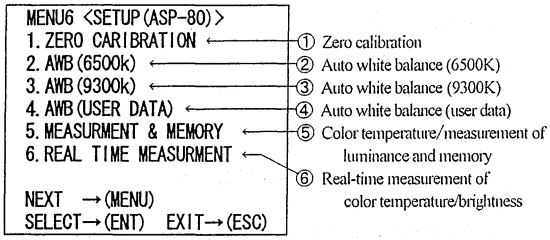
[Note]

When you have forgot your registered password, contact our company's sales office or **TECHNO IKEGAMI Co. Ltd.**
A password for unlocking the lock mode is available.

④ Setting of lock mode

・After entering password, press ENT switch, and "LOCK MODE" blinks, making it possible to change it with the rotary encoder.
After completion of setting, press ENT switch to finalize and press ESC switch to return to the former state.

(8) Functional description of MENU6



For details of operation, refer to Manual for ASP-80.

① Zero calibration

- Perform zero point adjustment for **ASP-80**.
  When carrying out operations mentioned in Item ② and thereafter with **ASP-80** connected to the monitor, be sure to perform zero point calibration.
- It does not function, when **ASP-80** is not connected.
- Use care that outdoor daylight does not enter the sensor window.
- When light to be measured is not incident on sensor window, message of "ERROR1:TOO LIGHT" appears.

② Auto White Balance (6500K)

- Set up at 6500K.
- To perform set-up, it is necessary to input 100% window signal or window pattern of the built-in test signal.

③ Auto White Balance (9300K)

- Set up at 9300K.
- To perform set-up, it is necessary to input 100% window signal or window pattern of the built-in test signal.

④ Auto White Balance (User Data)

- Set up at data set by user.
- To perform set-up, it is necessary to input 100% window signal or window pattern of the built-in test signal.

⑤ Color Temperature/Measurement of Luminance, and Memory

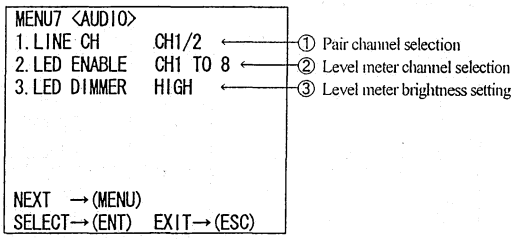
- Measures color temperature, brightness, and raster brightness set by user.
- They can be saved as USER DATA as necessary.
- Measurement range is as follows:
  Brightness: 10~190cd/m^2
  Raster brightness: 0.01~0.99cd/m^2
  Color temperature : 0.250~0.380
  (x, y axes of coordinates)

⑥ Real-time measurement of color temperature/brightness

- Measures color temperature and brightness in real time, and indicates numerical value.
- It can be used for other measurement than that with this monitor.

(9) Functional description of MENU 7

* This menu is provided to control SDI module DKM-501AV and AVD with embedded audio, and embedded audio level meter module DAM-504 and508. This menu setting does not function on monitor that is not equipped with the above-mentioned module.



① Pair channel selection

- Select analog voice line-out (2ch) of DKM-501AV from among 4 pair channels: CH 1/2, CH 3/4, CH 5/6, and CH 7/8.
- Embedded digital audio output model (DKM-501AVD) does not function.

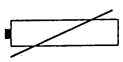
② Level meter channel selection

- Select indicating channel of **DAM-504** and **508** from among 8 channels (CH1 TO 8), 6 channels (CH1 TO 6), 4 channels (CH1 TO 4) and 2 channels (CH1 TO 2) when needed.
- 8 channels and 6 channels do not function in **DAM-504** (4-channel model).

③ Level meter brightness setting

- Select brightness of level meter LED of **DAM-504** and **508** from among HIGH, MID, LOW and OFF.
- It does not function to tally (red and green).

4.12 Explanation of Messages Displayed on Screen

Message	Explanation
ALL LOCK	Cause: Displayed in lock-mode (refer to 4-11(7)), or FILE 1, FILE 2, or FILE 3 switch is pressed. Countermeasure: Undo the lock mode (UNLOCK) and then operate again.
& FILE LOCK	Cause: Displayed when CHANGE PRESET switch or each STORE FILE is pressed with lock mode (refer to 4-11-(7)) set to PRESET FILE. Countermeasure: Undo the lock mode (UNLOCK) and then operate again.
CHANGE PRESET→ON	Cause: Displayed, when each PRESET switch is pressed with CHANGE PRESET switch turned off. Countermeasure: Turn on CHANGE PRESET switch and then operate again.
CHANGE PRESET→OFF	Cause: Displayed, when each PRESET switch is pressed with CHANGE PRESET switch turned on. Countermeasure: Turn off CHANGE PRESET switch and then operate again.
DELAY→OFF	Cause: Displayed, when BRIGHT PRESET switch is pressed in delay mode. Countermeasure: Cancel delay mode and then operate again.
APT→ON	Cause: Displayed, when APT PRESET switch is pressed with APR switch turned off. Countermeasure: Turn on APT switch and then operate again.
STORE FILE	Cause: Displayed, when CHANGE PRESET switch is pressed with FILE 1 to FILE 2 ready for selection (blinking) with STORE FILE switch. Countermeasure: Press STORE FILE switch to cancel the ready status (blinking) and then operate again.
MANUAL→OFF	Cause: Displayed, when PRESET switch is pressed with each manual volume control set to manual mode. Countermeasure: Select preset mode and then operate again.
MENU→OFF	Cause: Displayed, when CHANGE PRESET switch is pressed with menu displayed. Countermeasure: Preset data cannot be changed with menu displayed. Turn off menu display and then operate again.
NO OPERATION	Cause: Displayed, when operation is wrong and no function is provided. Countermeasure: Recheck operating procedure and then operate again.
ENTER CORRECT PASSWORD	Cause: Displayed, when lock mode of MENU 5 is already set and wrong password is entered. Countermeasure: Check password and enter again.
	Cause: This mark is indicated, when voltage of lithium cell of MPU BOARD for data backup begins to lower. Countermeasure: Change battery immediately. For how to change, refer to service manual.

5. How to Mount Optional Equipment

5.1 Mounting an Optional Module

(1) HTM-1505R

Notes

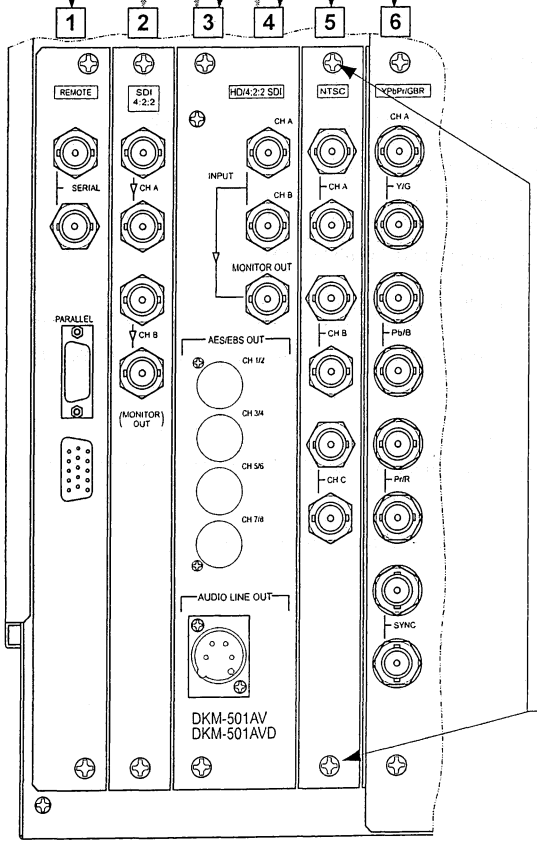
- Insert the module in a slot specified in the following Fig.:
- Insert option modules in slots 2 to 4.
  (This Fig. shows an example of mounting. If these modules are already mounted in the product you purchased, no mounting is required.)
- Slots 1 and 6 are fixed modules and they cannot be inserted in other position than this position.
- When mounting a module, remove the blank panel beforehand.
- Firmly fix with the upper and lower screws (2 pcs) of the module.
  If the screw is loose, the module will come off or contact failure of the connector will occur.

Module model number	Name	Number of slots
DK-801	4:2:2 Digital component module	1
DK-802N	4Fsc Digital composite module	1
DK-8012	4:2:2 Digital module	1
DKM-501A/B	Mulyiformat digital module	1
DKM-501*AV	(Ditto) W/embedded analog audio	2
DKM-501*AVD	(Ditto) W/embedded digital audio	2

Module model number	Name	Number of slots
DE-801	NTSC 3line COM decoder module	1
DE-802	PAL COM decoder module	1
DCH-501	Dual component module	1

MPU module
Fixed module of slot 1. It cannot be inserted into other slot.

VIDEO PROCESS module
Fixed module of slot 6. It cannot be inserted into other slot.



Module set screw
Firmly fix at 2 positions (upper and lower positions).

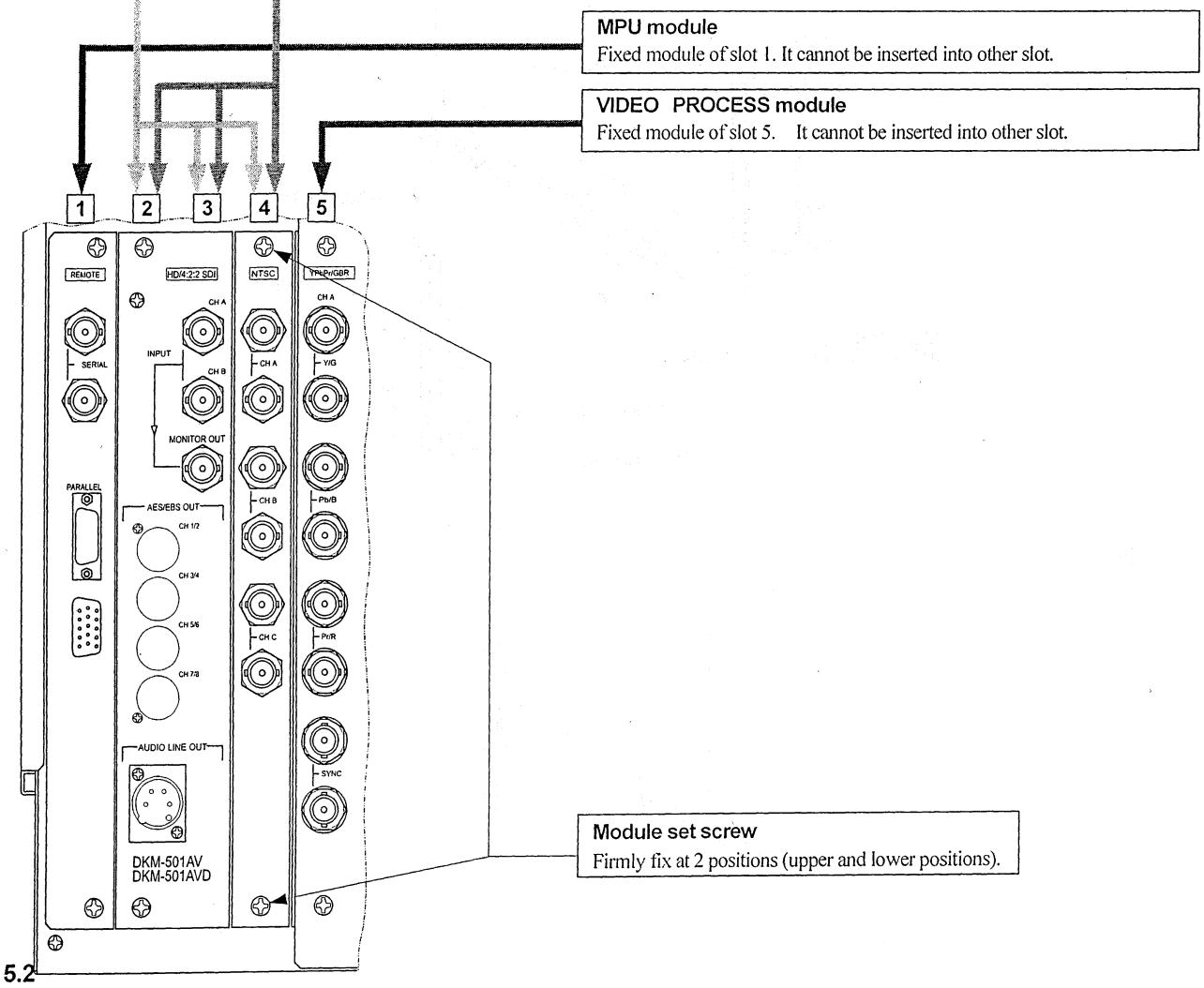
(2) HTM-1505CS

Notes

- Insert the module in a slot specified in the following Fig.:
- Insert option modules in slots 2 to 4.
  (This Fig. shows an example of mounting. If these modules are already mounted in the product you purchased, no mounting is required.)
- Slots 1 and 5 are fixed modules and they cannot be inserted in other position than this position.
- When mounting a module, remove the blank panel beforehand.
- Firmly fix with the upper and lower screws (2 pcs) of the module.
  If the screw is loose, the module will come off or contact failure of the connector will occur.

Module model number	Name	Number of slots
DK-801	4:2:2 Digital component module	1
DK-802N	4Fsc Digital composite module	1
DK-8012	4:2:2 Digital module	1
DKM-501A/B	Multi format digital module	1
DKM-501*AV	(Ditto) W/embedded analog audio	2
DKM-501*AVD	(Ditto) W/embedded digital audio	2

Module model number	Name	Number of slots
DE-801	NTSC 3 line COM decoder module	1
DE-802	PAL COM decoder module	1
DCH-501	Dual component module	1



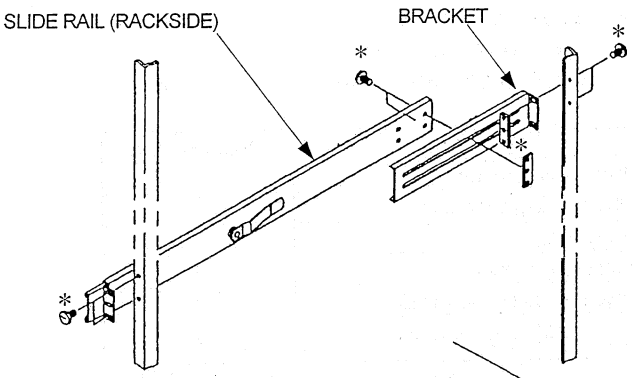
Mounting on a Rack

(1) RS-1505S

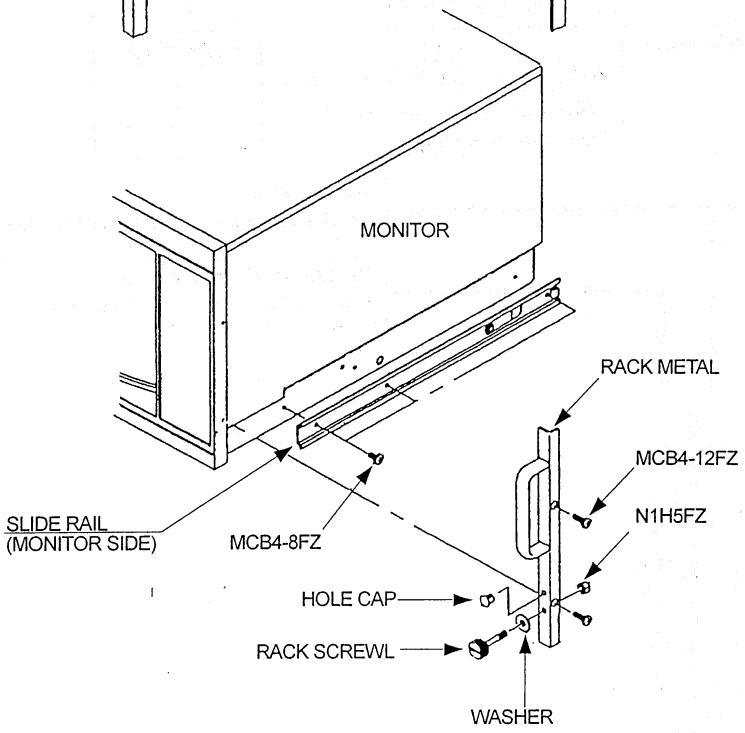
Rack mounting adapter for **HTM-1505 R/CS**

* marks are attachments for the slide rail.

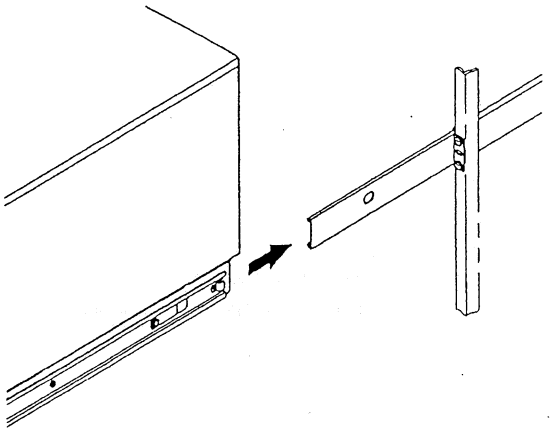
①



②



③

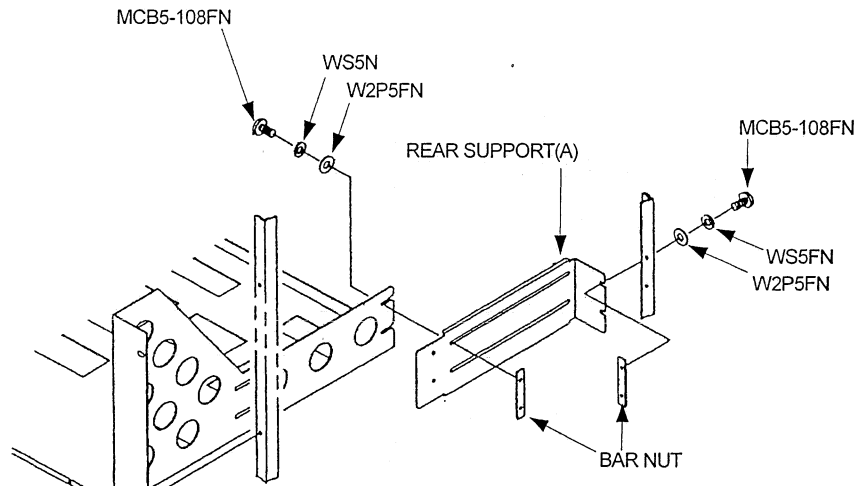


RS-1550S
SLIDE RAIL

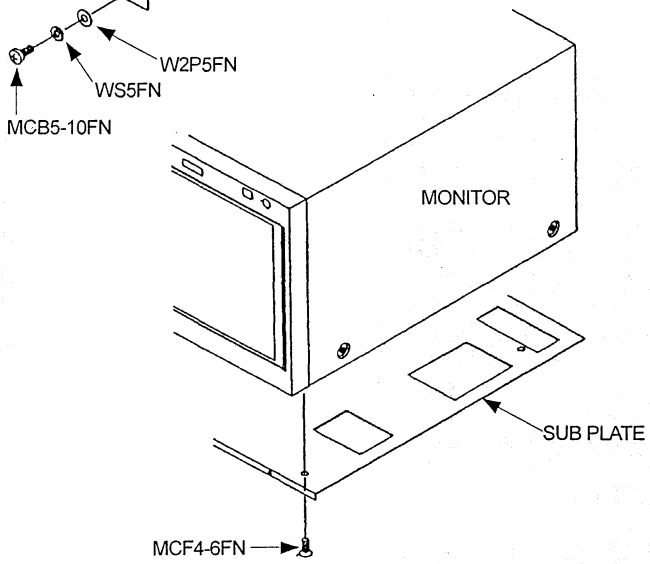
(2) RS-1505CS

Rack-mounting adapter for **HTM-1505 R/CS**

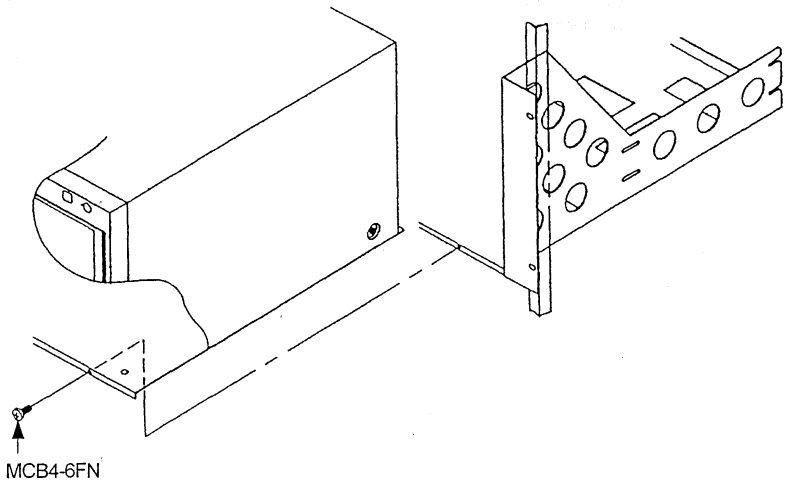
①



②



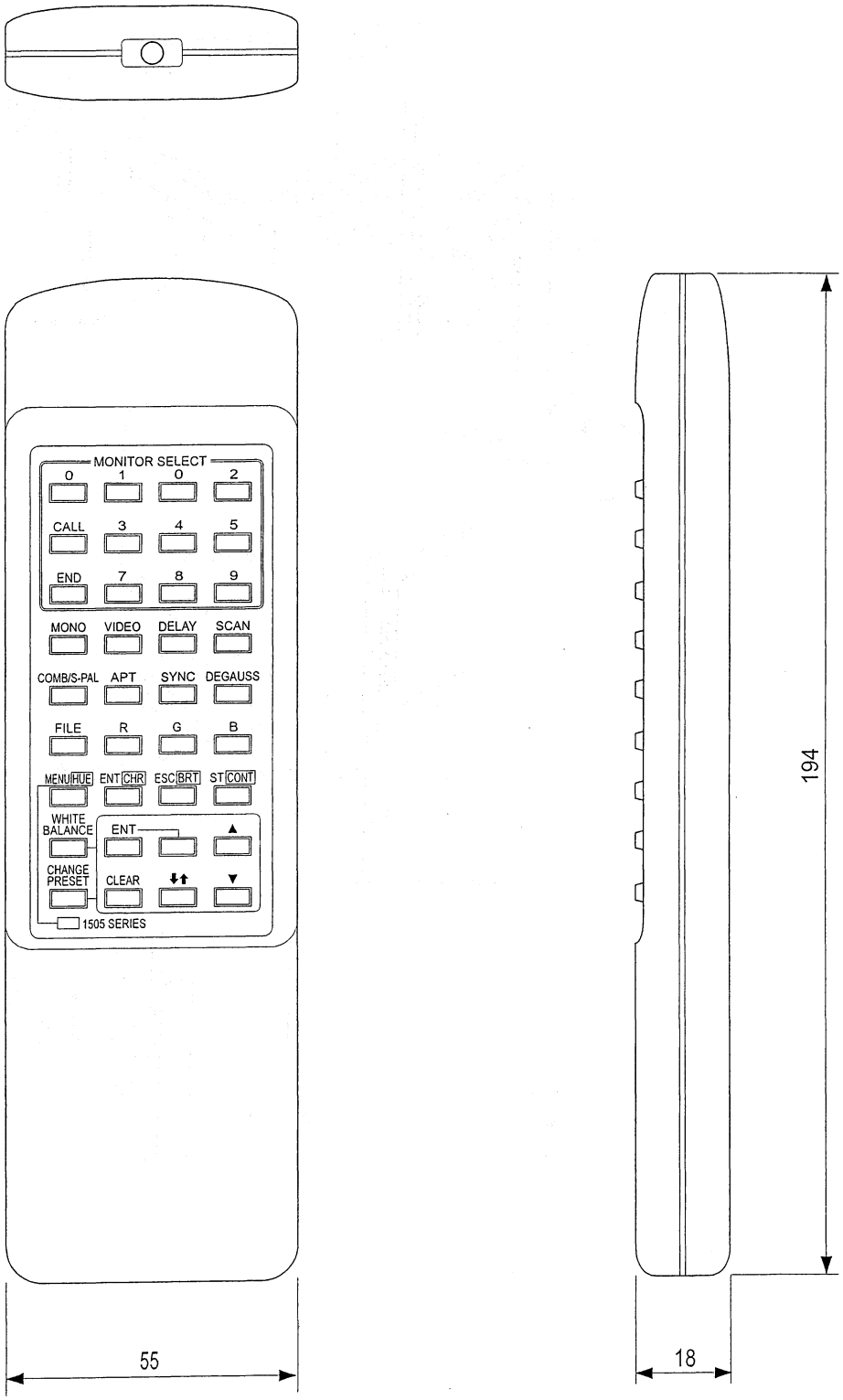
③



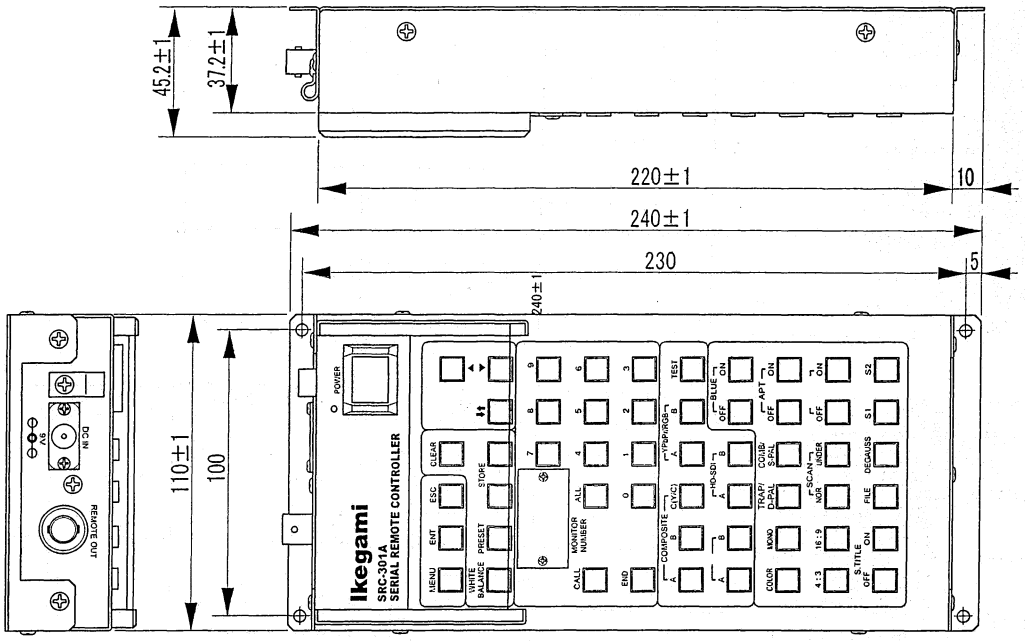
RS-1550CS
SLIDE RAIL

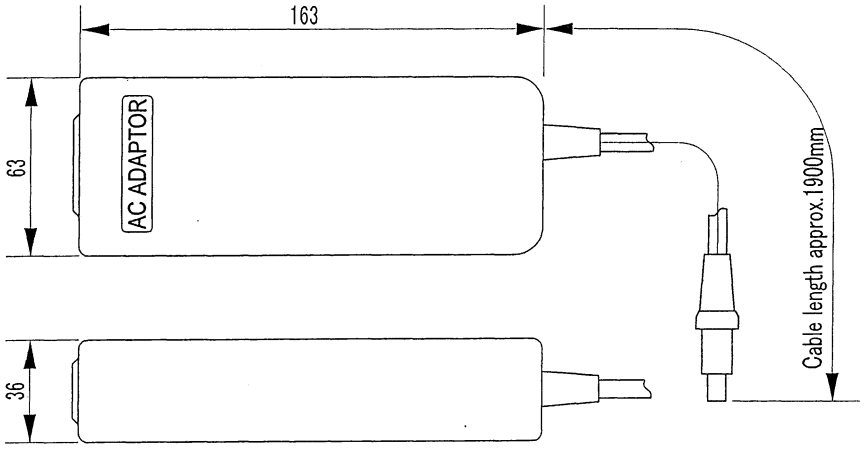
5.3 Remote Controller

(1) RCT-20A Infrared Remote Controller



(2) SRC-301A Serial Remote Controller





Adaptor

6. User's Memorandum

It is recommended that preset data be written in the following table:
Even if preset data has been changed by mistake, data will be easily recovered.

DATA	REF.	FILE1	FILE2	FILE3
HUE				
CHROMA				
BRIGHT				
CONT				
G.GAIN				
B.GAIN				
R.BKG				
G.BKG				
B.BKG				
APT				
ROTATION				

DATA		525i	625i	1035i	1080i	720p	( )	( )
WIDTH	4:3 UNDER							
	4:3 NORMAL							
	16:9 UNDER							
	16:9 NORMAL							
HEGHT	4:3 UNDER							
	4:3 NORMAL							
	16:9 UNDER							
	16:9 NORMAL							
H.PHASE								
H.CENT								
V.CENT								
TRAPEZOID								
SIDE PINJ								

MODEL **HTM-1505R**
MODEL **HTM-1505CS**

MULTI FORMAT COLOR MONITOR

OPERATION MANUAL

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